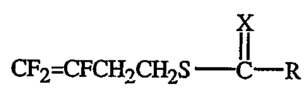
INSECTICIDAL AND NEMATICIDAL DIFLUOROALKENE DERIVATIVES

BACKGROUND OF THE INVENTION

This invention relates to certain fluorobutenyl compounds, their *N*-oxides, salts and compositions suitable for agronomic and nonagronomic uses, including those uses listed below, and methods of their use for controlling invertebrate pests in both agronomic and nonagronomic environments.

The control of invertebrate pests is extremely important in achieving high crop efficiency. Damage by invertebrate pests to growing and stored agronomic crops can cause significant reduction in productivity and thereby result in increased costs to the consumer. The control of invertebrate pests in forestry, greenhouse crops, ornamentals, nursery crops, stored food, fiber products, livestock, household, turf, wood products, and public and animal health is also important. Many products are commercially available for these purposes, but the need continues for new compounds which are more effective, less costly, less toxic, environmentally safer or have different modes of action.

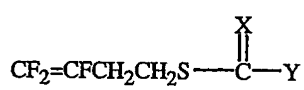
US 3,510,503 discloses trifluorobutenyl thioureas of Formula i as herbicides or nematocides



i

wherein, *inter alia*, X is phenylimino, chlorophenylimino, or C_1-C_8 alkylimino; and R is C_1-C_{10} alkylamino, C_2-C_{20} dialkylamino, or alkylthio.

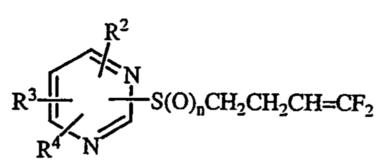
PCT Patent Publication WO 88/00183 discloses trifluorobutenyl thiocarbonic acid esters of Formula ii which exhibit nematicidal and anthelmintic activity



ii

wherein, *inter alia*, X is NR^1 or S; Y is SR or NR^2R^3; R is alkyl or haloalkyl; R^1 is alkyl or cyano; R^2 is H or alkyl; and R^3 is phenyl or pyridinyl.

WO 94/06777 discloses difluorobutenyl pyrimidines of Formula iii as nematocides, insecticides, acaricides, or fungicides

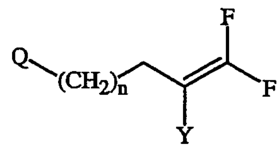


iii

wherein, *inter alia*, R^2, $R^3$and R^4 are each independently H, halogen, alkyl, optionally substituted aryl.

SUMMARY OF THE INVENTION

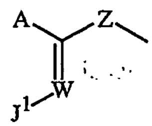
This invention is directed to compounds of Formula I including all geometric and stereoisomers, *N*-oxides thereof, agronomically or nonagronomically suitable salts thereof, agricultural and nonagricultural compositions containing them, and their use for controlling invertebrate pests:



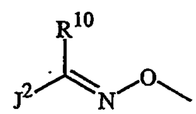
I

wherein

Q is Q-1 or Q-2;



Q-1



Q-2

Y is H, F, Cl or CH_3;

A is CN, C_1-C_6 alkyl, OR^{1a}, SR^{1a}, $NR^{1a}R^{2a}$ or $CONR^{1b}R^{2b}$;

Z is O, S or NR^3;

W is N or CR^4;

J^1 and J^2 are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl, C_4-C_8 cycloalkylalkyl, C_1-C_4 alkoxy, C_2-C_6 alkoxycarbonyl or C_2-C_6 alkylcarbonyl, each optionally substituted with one G and each optionally substituted with one or more R^5; or

J^1 and J^2 are G, NO_2, CN, OH, NR^6R^7, $CONR^6R^7$, $OCONR^6R^7$, C_1-C_4 alkylsulfonyl, C(O)G or $S(O)_2G$;

each G is independently a phenyl ring, a naphthyl ring system, a 5- or 6-membered heteroaromatic ring or an aromatic 8-, 9-, or 10-membered fused heterobicyclic ring system, each ring or ring system optionally substituted with 1 to 5 R^8;

R^{1a} and R^{1b} are H; G; CN; or C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl, each optionally substituted with one or more substituents selected from the group consisting of G, halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_2-C_4 alkoxycarbonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino and C_3-C_6 cycloalkylamino;

R^{2a} and R^{2b} are H; or C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl, each optionally substituted with one or more substituents selected from the group consisting of halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_2-C_4 alkoxycarbonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino and C_3-C_6 cycloalkylamino; or

R^{1a} and R^{2a} or R^{1b} and R^{2b} are taken together with the nitrogen to which they are attached to form a ring including 2 to 5 atoms of carbon and optionally one additional atom of nitrogen, sulfur or oxygen, said ring optionally substituted with 1 to 2 R^5;

R^3 is H, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl;

R^4 is H, C_1-C_4 alkyl or CN; or

R^4 is a phenyl ring optionally substituted with 1 to 5 R^8;

each R^5 is independently halogen, CN, NO_2, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, C_1-C_6 haloalkyl, C_2-C_6 haloalkenyl, C_2-C_6 haloalkynyl, C_3-C_6 halocycloalkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino, C_3-C_6 cycloalkylamino, C_2-C_6 alkylcarbonyl or C_2-C_6 alkoxycarbonyl;

R^6 and R^7 are each independently H; or C_1-C_6 alkyl, C_3-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_6 cycloalkyl, C_2-C_6 alkylcarbonyl or C_2-C_6 alkoxycarbonyl, each optionally substituted with halogen; or

R^6 and R^7 can be taken together with the nitrogen to which they are attached to form a ring which includes 2 to 5 atoms of carbon and optionally one additional atom of nitrogen, sulfur or oxygen, said ring optionally substituted with halogen;

each R^8 is independently halogen, CN, NO_2, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, C_1-C_6 haloalkyl, C_2-C_6 haloalkenyl, C_2-C_6 haloalkynyl, C_3-C_6 halocycloalkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino, C_3-C_6 cycloalkylamino, C_2-C_6 alkylcarbonyl or C_2-C_6 alkoxycarbonyl; or

each R^8 is independently a phenoxy ring or a phenyl ring, each ring optionally substituted with 1 to 5 R^5;

R^{10} is H; or C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl, each optionally substituted with one or more substituents selected from the group consisting of halogen, CN, NO_2, C_1-C_4 alkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_2-C_4 alkoxycarbonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino and C_3-C_6 cycloalkylamino; or

R^{10} is C_1-C_6 alkylthio, CN, CO_2R^{12}, $CONR^{12}R^{13}$ or phenyl optionally substituted with 1 to 5 R^{11};

each R^{11} is independently halogen, CN, NO_2, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, C_1-C_6 haloalkyl, C_2-C_6 haloalkenyl, C_2-C_6 haloalkynyl, C_3-C_6 halocycloalkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkoxy, C_1-C_4 alkylthio, C_1-C_4 alkylsulfinyl, C_1-C_4 alkylsulfonyl, C_1-C_4 haloalkylthio, C_1-C_4 haloalkylsulfinyl, C_1-C_4 haloalkylsulfonyl, C_1-C_4 alkylamino, C_2-C_8 dialkylamino, C_3-C_6 cycloalkylamino, C_2-C_6 alkylcarbonyl, or C_2-C_6 alkoxycarbonyl;

R^{12} and R^{13} are each independently H or C_1-C_6 alkyl; and

n is 1, 3 or 5;

provided that

(1) when Y is F, Z is S, n is 1, A is SR^{1a}, $NR^{1a}R^{2a}$ and W is N, then J^1 is other than alkyl, G, CN or cycloalkyl;

(2) J^1 is other than 3-(4-trifluoromethyl)pyridinylcarbonyl or an *N*-oxide thereof;

(3) when R^{10} is H, methyl, ethyl, phenyl or 4-fluorophenyl, and J^2 is phenyl substituted with R^8, then R^8 is other than 2-fluoroethoxy;

(4) when Z is NH, W is N, and A is SR^{1a}, then J^1 is other than phenyl substituted at the 2 and the 6 positions with alkyl or cycloalkyl; and

(5) when Z is NR^3, W is N or CH, A is $NR^{1a}R^{2a}$, and R^{1a} or R^{2a} is H or alkyl, then J^1 is other than CN or NO_2.

This invention also provides a composition for controlling an invertebrate pest comprising a biologically effective amount of a compound of Formula **I**, an *N*-oxide or an agronomic or nonagronomic suitable salt thereof; and at least one additional component selected from the group consisting of a surfactant, a solid diluent and a liquid diluent, said composition optionally further comprising an effective amount of at least one additional biologically active compound or agent.

This invention also provides a method for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound of Formula **I**, its *N*-oxide or an agronomically or nonagronomically suitable salt thereof, or with a biologically effective amount of a composition comprising a compound of Formula **I**, an *N*-oxide or an agronomically or nonagronomically suitable salt thereof, and at least one additional component selected from the group consisting of a surfactant, a solid diluent, and a liquid diluent, said composition optionally further comprising an effective amount of at least one additional biologically active compound or agent.

This invention further provides a spray composition comprising a compound of Formula **I**, an *N*-oxide, or an agronomically or nonagronomically suitable salt thereof or the composition described above; and a propellant. This invention also provides a bait composition comprising a compound of Formula **I**, an *N*-oxide or a suitable salt thereof; one

or more food materials; optionally an attractant; and optionally a humectant. This invention further provides a device for controlling an invertebrate pest comprising said bait composition and a housing adapted to receive said bait composition, wherein the housing has at least one opening sized to permit the invertebrate pest to pass through the opening so the invertebrate pest can gain access to said bait composition from a location outside the housing, and wherein the housing is further adapted to be placed in or near a locus of potential or known activity for the invertebrate pest.

DETAILS OF THE INVENTION

As used herein, the terms "comprises," "comprising," "includes," "including," "has," "having," "contains" or "containing," or any other variation thereof, are intended to cover a non-exclusive inclusion. For example, a composition, a mixture, process, method, article, or apparatus that comprises a list of elements is not necessarily limited to only those elements but may include other elements not expressly listed or inherent to such composition, mixture, process, method, article, or apparatus. Further, unless expressly stated to the contrary, "or" refers to an inclusive or and not to an exclusive or. For example, a condition A or B is satisfied by any one of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

Also, the indefinite articles "a" and "an" preceding an element or component of the invention are intended to be nonrestrictive regarding the number of instances (i.e. occurrences) of the element or component. Therefore "a" or "an" should be read to include one or at least one, and the singular word form of the element or component also includes the plural unless the number is obviously meant to be singular. For example, a composition of the present invention comprises a biologically effective amount of "a" compound of Formula I which should be read that the composition includes one or at least one compound of Formula I.

In the above recitations, the term "alkyl", used either alone or in compound words such as "alkylthio" or "haloalkyl" includes straight-chain or branched alkyl, such as, methyl, ethyl, *n*-propyl, *i*-propyl, or the different butyl, pentyl or hexyl isomers. "Alkenyl" includes straight-chain or branched alkenes such as ethenyl, 1-propenyl, 2-propenyl, and the different butenyl, pentenyl and hexenyl isomers. "Alkenyl" also includes polyenes such as 1,2-propadienyl and 2,4-hexadienyl. "Alkynyl" includes straight-chain or branched alkynes such as ethynyl, 1-propynyl, 2-propynyl and the different butynyl, pentynyl and hexynyl isomers. "Alkynyl" can also include moieties comprised of multiple triple bonds such as 2,5-hexadiynyl. "Alkoxy" includes, for example, methoxy, ethoxy, *n*-propyloxy, isopropyloxy and the different butoxy, pentoxy and hexyloxy isomers. "Alkylthio" includes branched or straight-chain alkylthio moieties such as methylthio, ethylthio, and the different propylthio, butylthio, pentylthio and hexylthio isomers. "Alkylsulfinyl" includes both enantiomers of an alkylsulfinyl group. Examples of "alkylsulfinyl" include $CH_3S(O)$,

$CH_3CH_2S(O)$, $CH_3CH_2CH_2S(O)$, $(CH_3)_2CHS(O)$ and the different butylsulfinyl, pentylsulfinyl and hexylsulfinyl isomers. Examples of "alkylsulfonyl" include $CH_3S(O)_2$, $CH_3CH_2S(O)_2$, $CH_3CH_2CH_2S(O)_2$, $(CH_3)_2CHS(O)_2$ and the different butylsulfonyl, pentylsulfonyl and hexylsulfonyl isomers. "Alkylamino", "dialkylamino", and the like, are defined analogously to the above examples. "Cycloalkyl" includes, for example, cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl. Examples of "cycloalkylalkyl" include cyclopropylmethyl, cyclopentylethyl, and other cycloalkyl moieties bonded to straight-chain or branched alkyl groups. The term "cycloalkylamino" includes the cycloalkyl groups linked through a nitrogen atom such as cyclopentylamino and cyclohexylamino.

Examples of "alkylcarbonyl" include $CH_3C(O)$, $CH_3CH_2CH_2C(O)$ and $(CH_3)_2CHC(O)$. Examples of "alkoxycarbonyl" include $CH_3OC(=O)$, $CH_3CH_2OC(=O)$, $CH_3CH_2CH_2OC(=O)$, $(CH_3)_2CHOC(=O)$ and the different butoxy- or pentoxycarbonyl isomers.

The term "heteroaromatic ring" denotes a fully aromatic heterocyclic ring in which at least one ring atom is not carbon and which comprises 1 to 4 heteroatoms independently selected from the group consisting of nitrogen, oxygen and sulfur, provided that each heterocyclic ring includes no more than 4 nitrogens, no more than 2 oxygens and no more than 2 sulfurs (where aromatic indicates that the Hückel rule is satisfied). The term "aromatic polycyclic ring system" denotes polycyclic ring system comprising carbocycles and heterocycles in which at least one ring of the polycyclic ring system is aromatic (where aromatic indicates that the Hückel rule is satisfied for the ring system). The term "aromatic heterobicyclic ring system" denotes a bicyclic ring which contains at least one heteroatom and in which at least one ring of the bicyclic ring system is aromatic (where aromatic indicates that the Hückel rule is satisfied). The heteroaromatic rings or heterobicyclic ring systems can be attached through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

The term "halogen", either alone or in compound words such as "haloalkyl", includes fluorine, chlorine, bromine or iodine. Further, when used in compound words such as "haloalkyl", said alkyl can be partially or fully substituted with halogen atoms which can be the same or different. Examples of "haloalkyl" include F_3C, $ClCH_2$, CF_3CH_2 and CF_3CCl_2. The terms "haloalkenyl", "haloalkynyl", "haloalkoxy", "haloalkylthio", and the like, are defined analogously to the term "haloalkyl". Examples of "haloalkenyl" include $(Cl)_2C{=}CHCH_2$ and $CF_3CH_2CH{=}CHCH_2$. Examples of "haloalkynyl" include $HC{\equiv}CCHCl$, $CF_3C{\equiv}C$, $CCl_3C{\equiv}C$ and $FCH_2C{\equiv}CCH_2$. Examples of "haloalkoxy" include CF_3O, CCl_3CH_2O, $HCF_2CH_2CH_2O$ and CF_3CH_2O. Examples of "haloalkylthio" include CCl_3S, CF_3S, CCl_3CH_2S and $ClCH_2CH_2CH_2S$. Examples of "haloalkylsulfinyl" include $CF_3S(O)$,

$CCl_3S(O)$, $CF_3CH_2S(O)$ and $CF_3CF_2S(O)$. Examples of "haloalkylsulfonyl" include $CF_3S(O)_2$, $CCl_3S(O)_2$, $CF_3CH_2S(O)_2$ and $CF_3CF_2S(O)_2$.

The total number of carbon atoms in a substituent group is indicated by the "C_i-C_j" prefix where i and j are numbers from 1 to 8. For example, C_1-C_4 alkylsulfonyl designates methylsulfonyl through butylsulfonyl; C_4 cycloalkylalkyl designates cyclopropylmethyl; C_5 cycloalkylalkyl designates, for example, cyclopropylethyl or cyclobutylmethyl; and C_6 cycloalkylalkyl designates the various ring size of a cycloalkyl group substituted with an alkyl group containing a total of six carbon atoms, examples including cyclopentylmethyl, 1-cyclobutylethyl, 2-cyclobutylethyl and 2-cyclopropylpropyl. In the above recitations, when a compound of Formula I is comprised of one or more heterocyclic rings, all substituents are attached to these rings through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

When a group contains a substituent which can be hydrogen, for example R^3 or R^4, then, when this substituent is taken as hydrogen, it is recognized that this is equivalent to said group being unsubstituted.

One skilled in the art will appreciate that not all nitrogen containing heterocycles can form *N*-oxides since the nitrogen requires an available lone pair for oxidation to the oxide; one skilled in the art will recognize those nitrogen containing heterocycles which can form *N*-oxides. One skilled in the art will also recognize that tertiary amines can form *N*-oxides. Synthetic methods for the preparation of *N*-oxides of heterocycles and tertiary amines are well known by one skilled in the art including the oxidation of heterocycles and tertiary amines with peroxy acids such as peracetic and *m*-chloroperbenzoic acid (MCPBA), hydrogen peroxide, alkyl hydroperoxides such as *t*-butyl hydroperoxide, sodium perborate, and dioxiranes such as dimethydioxirane. These methods for the preparation of *N*-oxides have been extensively described and reviewed in the literature, see for example: T. L. Gilchrist in *Comprehensive Organic Synthesis*, vol. 7, pp 748-750, S. V. Ley, Ed., Pergamon Press; M. Tisler and B. Stanovnik in *Comprehensive Heterocyclic Chemistry*, vol. 3, pp 18-20, A. J. Boulton and A. McKillop, Eds., Pergamon Press; M. R. Grimmett and B. R. T. Keene in *Advances in Heterocyclic Chemistry*, vol. 43, pp 149-161, A. R. Katritzky, Ed., Academic Press; M. Tisler and B. Stanovnik in *Advances in Heterocyclic Chemistry*, vol. 9, pp 285-291, A. R. Katritzky and A. J. Boulton, Eds., Academic Press; and G. W. H. Cheeseman and E. S. G. Werstiuk in *Advances in Heterocyclic Chemistry*, vol. 22, pp 390-392, A. R. Katritzky and A. J. Boulton, Eds., Academic Press.

Compounds of this invention can exist as one or more stereoisomers. The various stereoisomers include enantiomers, diastereomers, atropisomers and geometric isomers. One skilled in the art will appreciate that one stereoisomer can be more active and/or can exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich,

and/or to selectively prepare said stereoisomers. Accordingly, the present invention comprises compounds selected from Formula I, *N*-oxides, and agronomically or nonagronomically salts thereof. The compounds of the invention can be present as a mixture of stereoisomers, individual stereoisomers, or as an optically active form.

Agronomically and nonagronomically suitable salts of the compounds of the invention include acid-addition salts with inorganic or organic acids such as hydrobromic, hydrochloric, nitric, phosphoric, sulfuric, acetic, butyric, fumaric, lactic, maleic, malonic, oxalic, propionic, salicylic, tartaric, 4-toluenesulfonic or valeric acids. Agronomically and nonagronomically suitable salts of the compounds of the invention also include those formed with organic bases (e.g., pyridine or triethylamine) or inorganic bases (e.g., ammonia, hydrides, hydroxides, or carbonates of sodium, potassium, lithium, calcium, magnesium or barium) when the compound includes an acidic group such as a carboxylic acid or phenol.

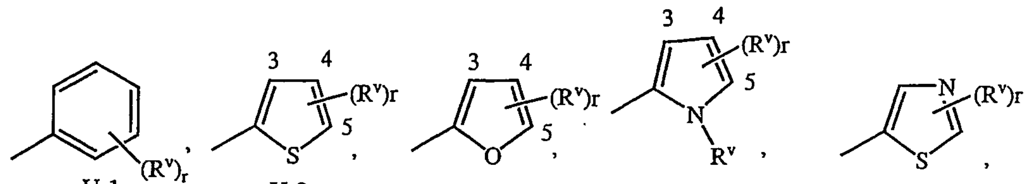
The term "optionally substituted" in connection with J^1, J^2, G, R^{1a}, R^{1b}, R^{2a}, R^{2b}, R^4, R^6, R^7, R^8, R^{10} groups refers to groups that are unsubstituted or have at least one non-hydrogen substituent that does not extinguish the activity for controlling invertebrate pests possessed by the unsubstituted analog. A group substituted with one or more substituents means that one or more of the hydrogen on that group can be replaced by a substituent. Therefore, as the number of hydrogens of a group is limited, the possible number of substituents is limited.

An example of phenyl optionally substituted with one or more R^8 is the ring illustrated as U-1 in Exhibit 1, wherein R^v is H or R^8 and r is an integer from 1 to 5. An example of a naphthyl group optionally substituted with 1 to 5 R^8 is illustrated as U-85 in Exhibit 1, wherein R^v is H or R^8 and r is an integer from 1 to 5. Examples of 5- or 6-membered heteroaromatic rings optionally substituted with R^8 include the rings U-2 through U-53 illustrated in Exhibit 1 wherein R^v is H or R^8 and r is an integer from 1 to 5 limited by the number of hydrogens on the rings. Examples of aromatic 8-, 9- or 10-membered fused heterobicyclic ring systems optionally substituted with 1 to 5 R^8 include U-54 through U-84 illustrated in Exhibit 1, since the number of replaceable hydrogens is greater than 5, wherein R^v is H or R^8 , and the number of R^8 is limited by the definition of r, and r is an integer from 1 to 5.

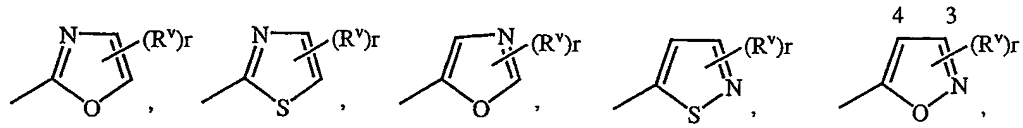
Although R^v groups are shown in the structures U-1 through U-85, it is noted that they do not need to be present since they are optional substituents. Note that when R^v is H when attached to an atom, this is the same as if said atom is unsubstituted. The nitrogen atoms that require substitution to fill their valence are substituted with H or R^8. Note that some U groups can only be substituted with less than 4 R^v groups (e.g. U-14, U-15, U-18 through U-21 and U-32 through U-34 can only be substituted with one R^v). Note that when the attachment point between $(R^v)_r$ and the U group is illustrated as floating, $(R^v)_r$ can be attached to any available carbon atom of the U group. Note that when the attachment point

on the U group is illustrated as floating, the U group can be attached to the remainder of Formula I through any available carbon of the U group by replacement of a hydrogen atom.

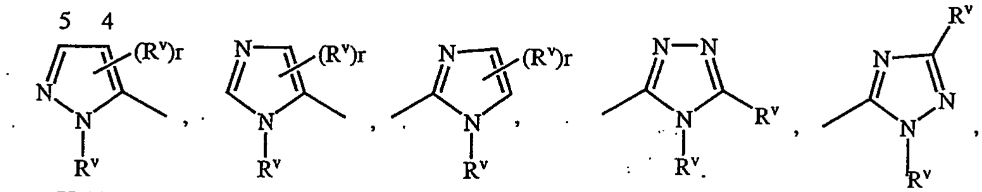
Exhibit 1



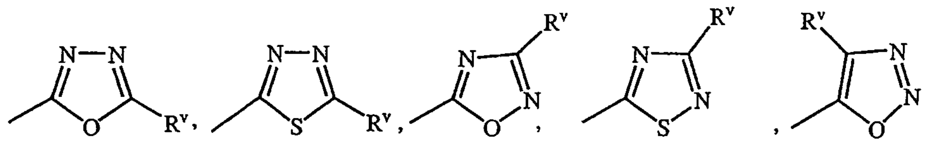
U-1 U-2 U-3 U-4 U-5



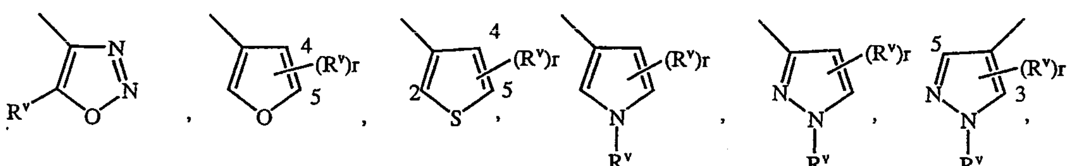
U-6 U-7 U-8 U-9 U-10



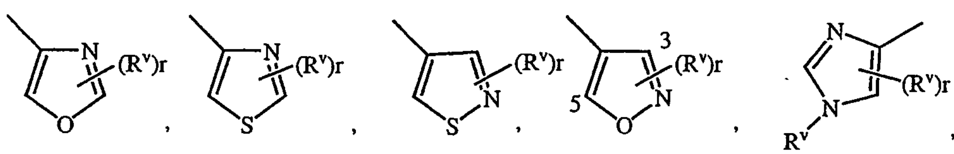
U-11 U-12 U-13 U-14 U-15



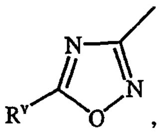
U-16 U-17 U-18 U-19 U-20

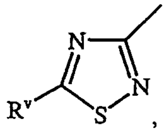


U-21 U-22 U-23 U-24 U-25 U-26



U-27 U-28 U-29 U-30 U-31


U-32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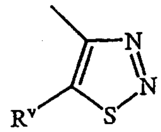
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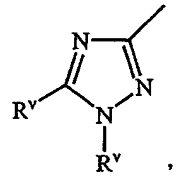
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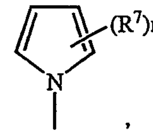
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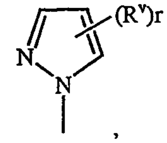
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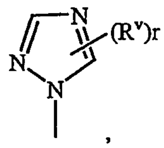
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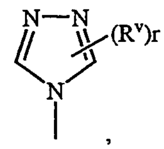
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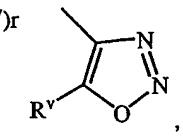
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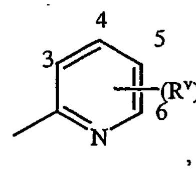
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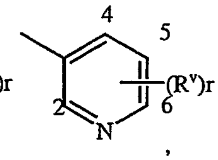
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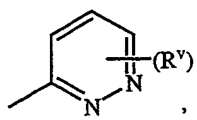
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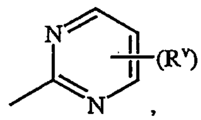
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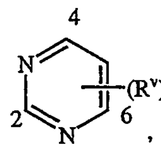
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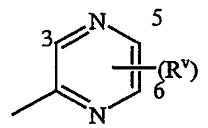
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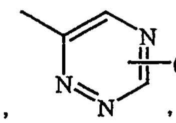
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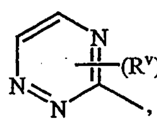
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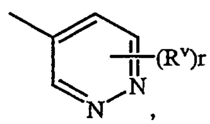
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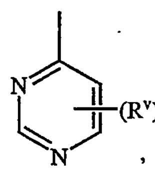
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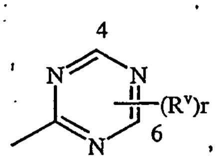
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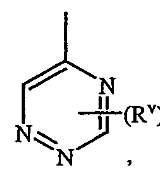
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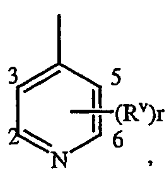
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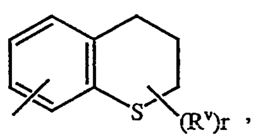
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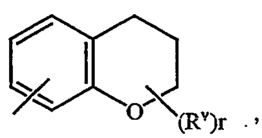
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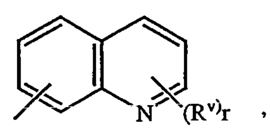
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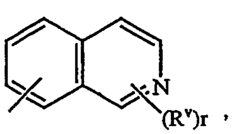
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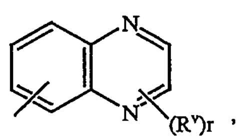
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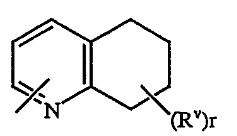
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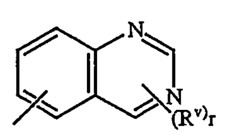
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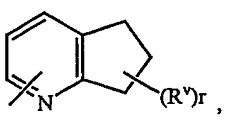
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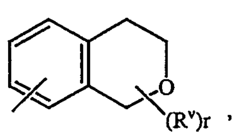
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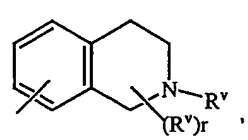
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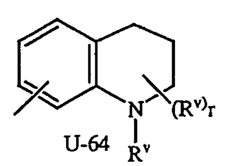
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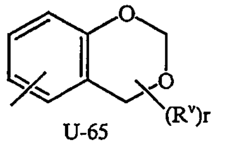
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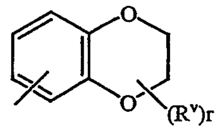
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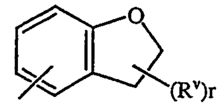
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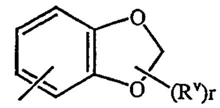
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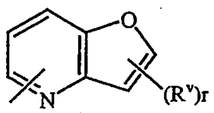
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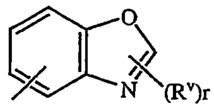
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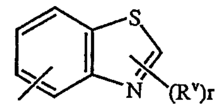
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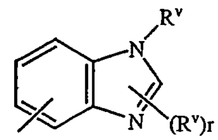
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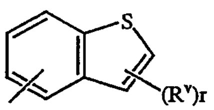
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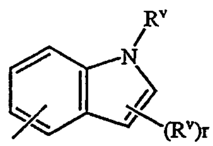
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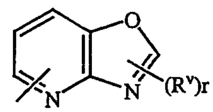
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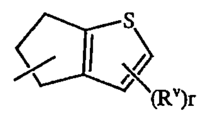
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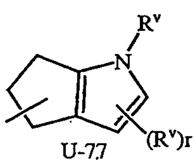
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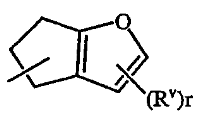
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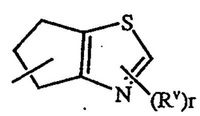
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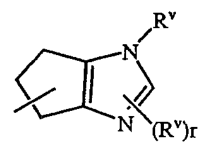
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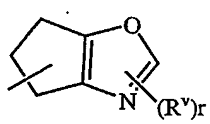
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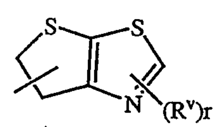
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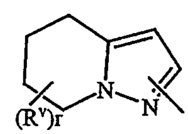
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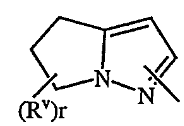
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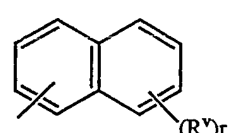
or 
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Embodiments of the present invention include:

Embodiment 1. A compound of Formula **I** wherein Q is Q-1.

Embodiment 2. A compound of Formula **I** wherein Q is Q-2.

Embodiment 3. A compound of Formula **I** wherein J^1 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl, C_4-C_8 cycloalkylalkyl, C_1-C_4 alkoxy, C_2-C_6 alkoxycarbonyl or C_2-C_6 alkylcarbonyl, each optionally substituted with one G and each optionally substituted with one or more R^5; or

Embodiment 4. A compound of Embodiment 3 wherein J^1 is C_1-C_4 alkoxy or C_2-C_4 alkoxycarbonyl, each optionally substituted with one or more R^5.

Embodiment 5. A compound of Formula **I** wherein J^1 is G, NO_2, CN, OH, NR^6R^7, $CONR^6R^7$, C_1-C_4 alkylsulfonyl, C(O)G or $S(O)_2G$.

Embodiment 6. A compound of Formula **I** wherein J^1 is CN, NO_2, OH, C_1-C_4 alkoxy, or phenyl optionally substituted with 1 to 5 R^8;

Embodiment 6a. A compound of Embodiment 6 wherein J^1 is CN, NO_2, OH or C_1-C_4 alkoxy.

Embodiment 6b. A compound of Embodiment 6 wherein J^1 is phenyl optionally substituted with 1 to 5 R^8.

Embodiment 7. A compound of Embodiment 6 wherein J^1 is CN.

Embodiment 8. A compound of Embodiment 6 wherein J^1 is NO_2.

Embodiment 9. A compound of Embodiment 5 wherein J^1 is G or C(O)G.

Embodiment 10. A compound of Embodiment 9 wherein J^1 is a phenyl ring or a 5- or 6-membered heteroaromatic ring, each ring optionally substituted with 1 to 5 R^8.

Embodiment 11. A compound of Embodiment 10 wherein J^1 is pyridinyl optionally substituted with 1 to 4 R^8.

Embodiment 12. A compound of Formula **I** wherein J^2 is C_1-C_6 alkyl or phenyl optionally substituted with 1 to 5 R^8.

Embodiment 13. A compound of Embodiment 12 wherein J^2 is C_1-C_6 alkyl.

Embodiment 14. A compound of Formula **I** wherein J^2 is G, $CONR^6R^7$, C_1-C_4 alkylsulfonyl, C(O)G or $S(O)_2G$.

Embodiment 15. A compound of Embodiment 14 wherein J^2 is phenyl or pyridinyl, each optionally substituted with 1 to 4 R^8.

Embodiment 16. A compound of Formula **I** wherein Y is H or F.

Embodiment 17. A compound of Embodiment 16 wherein Y is H.

Embodiment 18. A compound of Embodiment 16 wherein Y is F.

Embodiment 18a. A compound of Formula **I** wherein Y is H or CH_3.

Embodiment 19. A compound of Formula **I** wherein A is CN, C_1-C_6 alkyl, OR^{1a}, SR^{1a} or $NR^{1a}R^{2a}$.

Embodiment 20. A compound of Embodiment 19 wherein A is CN, C_1-C_6 alkyl, OR^{1a} or $NR^{1a}R^{2a}$.

Embodiment 21. A compound of Embodiment 20 wherein A is CN.

Embodiment 22. A compound of Embodiment 20 wherein A is C_1-C_6 alkyl.

Embodiment 23. A compound of Embodiment 19 wherein A is OR^{1a}, SR^{1a} or $NR^{1a}R^{2a}$.

Embodiment 24. A compound of Embodiment 23 wherein A is OR^{1a}.

Embodiment 25. A compound of Embodiment 23 wherein A is SR^{1a}.

Embodiment 26. A compound of Embodiment 23 wherein A is $NR^{1a}R^{2a}$.

Embodiment 27. A compound of Formula **I** wherein Z is S or NR^3.

Embodiment 28. A compound of Embodiment 27 wherein Z is S.

Embodiment 29. A compound of Embodiment 27 wherein Z is NR^3.

Embodiment 30. A compound of Formula I wherein W is N or CH.

Embodiment 31. A compound of Embodiment 30 wherein W is N.

Embodiment 32. A compound of Embodiment 30 wherein W is CH.

Embodiment 33. A compound of Formula I wherein R^{1a} is H; or C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl, each optionally substituted with halogen or C_2-C_4 alkoxycarbonyl.

Embodiment 34. A compound of Embodiment 33 wherein R^{1a} is H; or C_1-C_6 alkyl, C_2-C_6 alkenyl or C_3-C_6 alkynyl, each optionally substituted with one to three halogen.

Embodiment 35. A compound of Embodiment 34 wherein R^{1a} is H, C_1-C_4 alkyl, C_3-C_4 alkenyl or C_3-C_4 alkynyl.

Embodiment 35a. A compound of Embodiment 34 wherein R^{1a} is H or C_1-C_6 alkyl.

Embodiment 35b. A compound of Embodiment 34 wherein R^{1a} is C_1-C_6 alkyl.

Embodiment 36. A compound of Formula I wherein R^{2a} is H; or C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl, each optionally substituted with halogen or C_2-C_4 alkoxycarbonyl.

Embodiment 37. A compound of Embodiment 36 wherein R^{2a} is H; or C_1-C_6 alkyl, C_2-C_6 alkenyl or C_3-C_6 alkynyl, each optionally substituted with one to three halogen.

Embodiment 38. A compound of Embodiment 37 wherein R^{2a} is H, C_1-C_4 alkyl, C_3-C_4 alkenyl or C_3-C_4 alkynyl.

Embodiment 39. A compound of Embodiment 37 wherein R^{2a} is H or C_1-C_6 alkyl.

Embodiment 40. A compound of Formula I wherein R^{1a} and R^{2a} are taken together with the nitrogen to which they are attached to form a ring including 2 to 5 atoms of carbon and optionally one additional atom of nitrogen, sulfur or oxygen, and said ring optionally substituted with 1 to 2 R^5.

Embodiment 41. A compound of Formula I wherein R^3 is H or C_1-C_6 alkyl.

Embodiment 42. A compound of Embodiment 41 wherein R^3 is H.

Embodiment 43. A compound of Formula I wherein R^5 is halogen, C_1-C_4 alkyl, C_1-C_4 alkoxy, CN, NO_2, CF_3 or OCF_3.

Embodiment 44. A compound of Formula I wherein R^8 is halogen, C_1-C_4 alkyl, C_1-C_4 alkoxy, CN, NO_2, CF_3 or OCF_3.

Embodiment 45. A compound of Formula I wherein R^{10} is H, C_1-C_6 alkyl, C_1-C_6 alkylthio, $CONR^{12}R^{13}$, CN or phenyl optionally substituted with 1 to 5 R^{11}.

Embodiment 45a. A compound of Formula I wherein R^{10} is H, C_1-C_6 alkyl, C_1-C_6 alkylthio, $CONR^{12}R^{13}$ or phenyl optionally substituted with 1 to 5 R^{11}.

Embodiment 46. A compound of Formula **I** wherein n is 1, 3 or 5.

Embodiment 47. A compound of Embodiment 46 wherein n is 1 or 3.

Embodiment 48. A compound of Embodiment 47 wherein n is 1.

Embodiment 49. A compound of Formula **I** wherein when J^1 is C(O)G, then G is other than optionally substituted 3-pyridinyl.

Embodiment 50. A compound of Formula **I** wherein when J^1 is C(O)G, then G is other than optionally substituted pyridinyl.

Embodiment 51. A compound of Formula **I** wherein when J^2 is phenyl substituted with R^8, then R^8 is other than fluoroalkoxy.

Embodiment 52. A compound of Formula **I** wherein when J^2 is phenyl substituted with R^8, then R^8 is other than haloalkoxy.

Embodiment 53. A compound of Formula **I** wherein when J^2 is phenyl substituted with R^8, then R^8 is other than haloalkoxy, haloalkylthio, haloalkylsulfinyl or haloalkylsulfonyl.

Embodiment 54. A compound of Formula **I** wherein when Z is NH, W is N, and A is SR^{1a}, then J^1 is other than phenyl substituted at the 2 and 6 positions and optionally at other positions.

Embodiment 55. A compound of Formula **I** wherein when Z is NH, W is N, and A is SR^{1a}, then J^1 is other than optionally substituted phenyl.

Embodiment 56. A compound of Formula **I** wherein when Z is NR^3, W is N or CH, J^1 is CN or NO_2, then A is other than $NR^{1a}R^{2a}$.

Combinations of Embodiments 1-56 are illustrated by:

Embodiment A. A compound of Formula **I** wherein

Q is Q-1;

J^1 is G; or C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl, C_4-C_8 cycloalkylalkyl, C_1-C_4 alkoxy, C_2-C_6 alkoxycarbonyl or C_2-C_6 alkylcarbonyl, each optionally substituted with one G and each optionally substituted with one or more R^5.

Embodiment B. A compound of Embodiment A wherein

Y is H or F;

A is CN, C_1-C_6 alkyl, OR^{1a} or $NR^{1a}R^{2a}$;

Z is S;

W is N;

R^{1a} and R^{2a} are each independently H, C_1-C_4 alkyl, C_3-C_4 alkenyl, C_3-C_4 alkynyl; and

R^5 and R^8 are each independently halogen, C_1-C_4 alkyl, C_1-C_4 alkoxy, CN, NO_2, CF_3 or OCF_3.

Embodiment C. A compound of Formula **I** wherein

Q is Q-1;

J^1 is G, NO_2, CN, OH, NR^6R^7, $CONR^6R^7$, C_1-C_4 alkylsulfonyl, C(O)G or $S(O)_2G$.

Embodiment D. A compound of Embodiment C wherein

Y is H or F;

A is OR^{1a}, SR^{1a} or $NR^{1a}R^{2a}$;

W is N or CH;

R^{1a} and R^{2a} are each independently H, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 alkynyl, C_3-C_7 cycloalkyl or C_4-C_8 cycloalkylalkyl, each optionally substituted with one to three halogen;

R^{1a} and R^{2a} can be taken together with the nitrogen to which they are attached to form a ring including 2 to 5 atoms of carbon and optionally one additional atom of nitrogen, sulfur or oxygen, and said ring can be optionally substituted with 1 to 2 R^5;

R^3 is H or C_1-C_4 alkyl;

R^5 and R^8 are each independently halogen, C_1-C_4 alkyl, C_1-C_4 alkoxy, CN, NO_2, CF_3 or OCF_3; and

n is 1 or 3.

Embodiment E. A compound of Formula **I** wherein

Q is Q-1;

Y is H;

Z is S;

W is N; A is $NR^{1a}R^{2a}$; J^1 is phenyl optionally substituted with 1 to 5 R^8;

R^{1a} and R^{2a} are each independently H or C_1-C_6 alkyl; and

n is 1 or 3.

Embodiment F. A compound of Formula **I** wherein

Q is Q-2;

Y is H;

J^2 is C_1-C_6 alkyl or phenyl optionally substituted with 1 to 5 R^8;

R^{10} is H, C_1-C_6 alkyl, C_1-C_6 thioalkyl, $CONR^{12}R^{13}$ or phenyl optionally substituted with 1 to 5 R^{11}; and

n is 1 or 3.

Embodiment G. A compound of Formula **I** wherein

Q is Q-2;

Y is F;

J^2 is C_1-C_6 alkyl or phenyl optionally substituted with 1 to 5 R^8;

R^{10} is H, C_1-C_6 alkyl, C_1-C_6 alkylthio, $CONR^{12}R^{13}$ or phenyl optionally substituted with 1 to 5 R^{11}; and

n is 1 or 3.

Embodiment H. A compound of Formula I wherein

Q is Q-1;

Y is H;

Z is S;

A is SR^{1a};

W is N;

J^1 is CN, NO_2, OH, C_1-C_4 alkoxy, or phenyl optionally substituted with 1 to 5 R^8;

R^{1a} is C_1-C_6 alkyl; and

n is 1 or 3.

Embodiment I. A compound of Formula I wherein

Q is Q-1;

Y is H or CH_3;

Z is S;

A is OR^{1a} or SR^{1a};

W is N; and

J^1 is CN.

Also noteworthy as embodiments of the present invention are compositions for controlling an invertebrate pest comprising a biologically effective amount of a compound of any of the preceding Embodiments, and at least one additional component selected from the group consisting of a surfactant, a solid diluent and a liquid diluent, said composition optionally further comprising a biologically effective amount of at least one additional biologically active compound or agent. Embodiments of the invention further include methods for controlling an invertebrate pest comprising contacting the invertebrate pest or its environment with a biologically effective amount of a compound of any of the preceding Embodiments (e.g., as a composition described herein).

Embodiments of the invention also include a composition comprising a compound of any of the preceding Embodiments, in the form of a soil drench liquid formulation. Embodiments of the invention further include methods for controlling an invertebrate pest comprising contacting the soil with a liquid composition as a soil drench comprising a biologically effective amount of a compound of any of the preceding Embodiments.

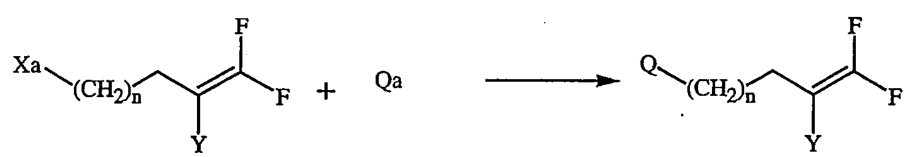
Embodiments of the invention also include a spray composition for controlling an invertebrate pest comprising a biologically effective amount of a compound of any of the preceding Embodiments and a propellant. Embodiments of the invention further include a bait composition for controlling an invertebrate pest comprising a biologically effective

amount of a compound of any of the preceding Embodiments, one or more food materials, optionally an attractant, and optionally a humectant. Embodiments of the invention also include a device for controlling an invertebrate pest comprising said bait composition and a housing adapted to receive said bait composition, wherein the housing has at least one opening sized to permit the invertebrate pest to pass through the opening so the invertebrate pest can gain access to said bait composition from a location outside the housing, and wherein the housing is further adapted to be placed in or near a locus of potential or known activity for the invertebrate pest.

Compounds of Formula **I** can be prepared by one or more of the following methods and variations as described in Schemes 1-17. The definitions of J^1, J^2, R^{1a}, R^{2a}, R^3, n, Q, Q-1 and Q-2 in the compounds of Formulae **Ia-Ij** and Formulae **2-25** below are as defined above in the Summary of the Invention. Compounds of Formulae **Ia-Ij** are various subsets of the compounds of Formula **I**, and all substituents for Formulae **Ia-Ij** are as defined above for Formula **I**.

Compounds of Formula **I** can be prepared by the general methods of reacting functionalized 1,1-difluoroalkenes **2** with substituted intermediates of Formula **3** as outlined in Scheme 1. The substituent Xa represents organic functional group suitable in well established coupling reactions involving nucleophilic substitution. For reactions where Xa is a leaving group such as Cl, Br or I then Qa contains a nucleophilic group such as sulfur, nitrogen or oxygen. In the reverse sense if Xa contains a nucleophilic group such as sulfur, nitrogen or oxygen then Qa contains a leaving group such as halogen, alkoxy, alkylthio and the like. These reactions employ a wide assortment of bases, solvents and conditions. The following schemes are intended to provide examples of the varied procedures useful for the preparation of compounds of Formula **I**.

Scheme 1



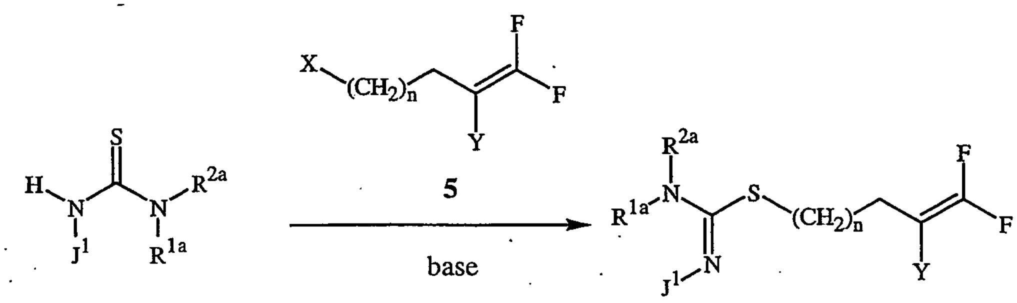
2 **3** **I**

Compounds of Formula **Ia** can be prepared by the reaction of thioureas of Formula **4** with fluorobutenyl derivatives of Formula **5** wherein X is halogen (e.g., Cl, Br, I), $OS(O)_2CH_3$ (methanesulfonate), $OS(O)_2CF_3$, $OS(O)_2Ph$-*p*-CH_3 (*p*-toluenesulfonate) and the like as outlined in Scheme 2. Suitable bases for the reaction include inorganic bases, such as alkali or alkaline earth metal (such as lithium, sodium, potassium, cesium) hydrides, alkoxides, carbonates, phosphates and hydroxides, and organic bases, such as triethylamine, *N,N*-diisopropylethylamine and 1,8-diazabicyclo[5.4.0]undec-7-ene. Preferred bases are potassium carbonate and potassium hydroxide. A wide variety of solvents are suitable for

the reaction, including, for example but are not limited to, *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile, tetrahydrofuran, acetone, alcohols and water, as well as mixtures of these solvents. This reaction can be conducted between about 0 to about 120 °C, and preferably between about 0 and 30 °C. Further procedural details for the method of Scheme 2 can be found in Examples 1 and 2.

Difluoroalkenyl compounds of Formula **5** are known in the art. For literature procedures to prepare compounds of Formula **5** see PCT Patent Publications WO 94/6777, WO 95/4727, WO 97/09292, and especially WO 99/52874. For other references related to the difluoroalkenyl compounds see *J. Am. Chem. Soc.* **1983**, *195*, 4634-4639; *J. Org. Chem.* **1991**, *56*, 1037-1041; and *J. Chem. Soc.* Perkin 2, **1998**, 219-231.

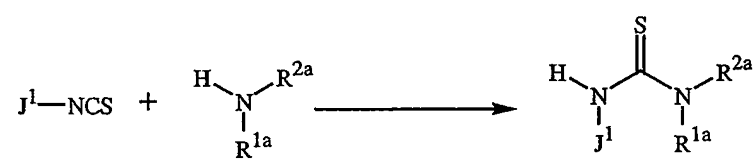
Scheme 2



4 Ia

Thioureas of Formula **4** are well known in the literature and can be readily prepared by the reaction of isothiocyanates of Formula **6** with mono- and dialkylamines of Formula **7** as shown in Scheme 3. The compounds of Formula **6** are either known compounds or can be prepared from amines and thiophosgene. The reaction can be run in a variety of suitable solvents such as acetone, acetonitrile, tetrahydrofuran and dichloromethane. The synthesis methods of Schemes 2 and 3 are illustrated with greater detail in Examples 1 and 2.

Scheme 3

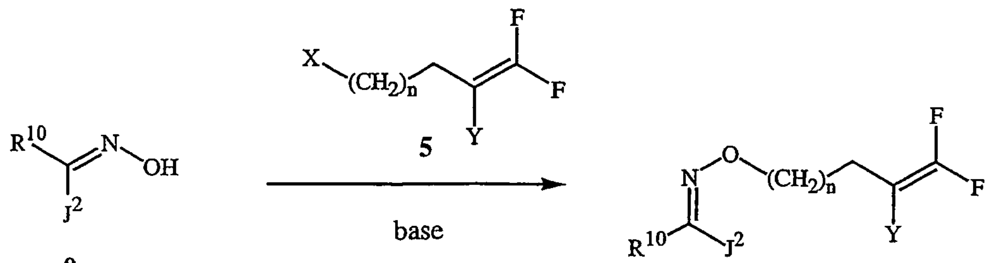


6 7 4

As outlined in Scheme 4, compounds of Formula **Ib** (Formula **I** where Q is Q-2) can be prepared by the reaction of oximes of Formula **9** with fluorobutenyl compounds of Formula **5**, X is a nucleophilic reaction leaving group such as halogen (e.g., Cl, Br, I), $OS(O)_2CH_3$ (methanesulfonate), $OS(O)_2CF_3$, $OS(O)_2Ph$-*p*-CH_3 (*p*-toluenesulfonate), and the like. The reactions can be conducted in a variety of solvents such as tetrahydrofuran, *N,N*-

dimethylformamide, dichloromethane, acetone or acetonitrile with optimum temperatures ranging from room temperature to the reflux temperature of the solvent. Suitable bases for this reaction include potassium carbonate, sodium carbonate, sodium hydride and potassium *tert*-butoxide. The method of Scheme 4 is illustrated in Examples 3 and 4.

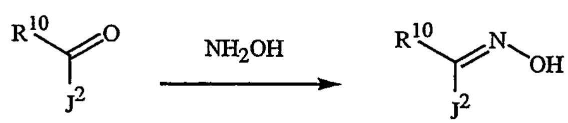
Scheme 4



9 **Ib**

Oximes of Formula **9** are well known in the literature. As shown in Scheme 5, many of these can be readily prepared by the reaction of aldehydes or ketones of Formula **10**, where R^{10} and J^2 are, for example, H, alkyl or aryl groups, with hydroxylamine hydrochloride in a suitable solvent such as ethanol, water or dioxane at temperatures ranging from room temperature to the reflux temperature of the solvent. A base is needed to liberate hydroxylamine from its salt. Suitable bases for the reaction include, but are not limited to, sodium hydroxide, sodium bicarbonate or sodium carbonate.

Scheme 5

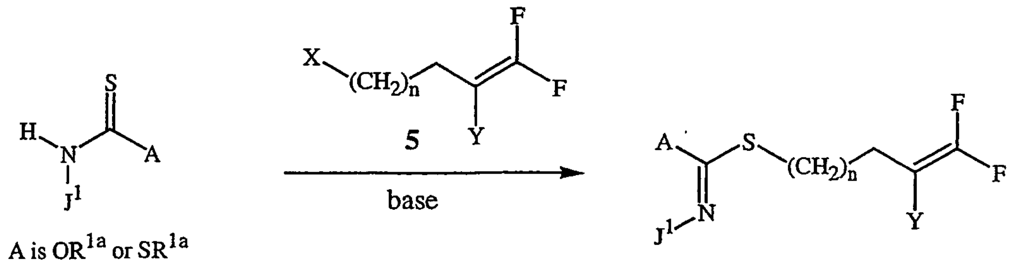


10 **9**

As shown in Scheme 6, compounds of Formula **Ic** can be prepared by the reaction of compounds of Formula **11** with difluoroalkenyl compounds of Formula **5** in the presence of a base. Typical J^1 values for compounds of Formula **Ic** include phenyl, 5- or 6-membered heteroaromatic ring, CN, alkylcarbonyl and alkoxycarbonyl. In the difluoroalkenyl compounds of Formula **5**, X is a leaving group as defined in Scheme 4. Suitable bases for the reaction include inorganic bases, such as alkali or alkali earth metal (such as lithium, sodium, potassium, cesium) hydrides, alkoxides, carbonates, phosphates and hydroxides, and organic bases, such as triethylamine, *N,N*-diisopropylethylamine and 1,8-diazabicyclo-[5.4.0]undec-7-ene. Preferred bases are potassium carbonate and potassium hydroxide. Preformed salts of compounds of Formula **11** can also be used in lieu of using a base. A wide variety of solvents can be suitable for the reaction, which include, for example, but are not limited to *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile, tetrahydrofuran,

acetone, alcohols and water as well as mixtures of the suitable solvents. This reaction can be conducted between about 0 to about 120 °C, and preferably between about 0 and 30 °C.

Scheme 6



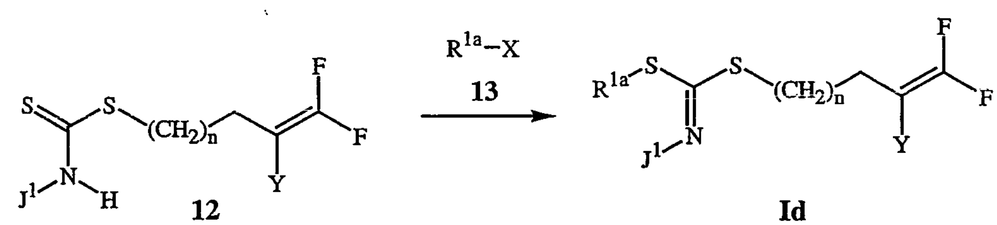
A is OR^{1a} or SR^{1a}

11

Ic

As shown in Scheme 7, compounds of Formula **Id** can be prepared by the reaction of compounds of Formula **12** with an alkylating agent of Formula **13** in the presence of a base. In the alkylating agent of Formula **13**, X is a leaving group as defined in Scheme 4 for Formula **5**. Suitable bases for the reaction include inorganic bases and organic bases as described above for Scheme 6. Preferred bases are potassium carbonate and potassium hydroxide. Preformed salts of compounds of Formula **12** can also be used in lieu of using a base. A wide variety of solvents can be suitable for the reaction, which include but are not limited to *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile, tetrahydrofuran, acetone, alcohols and water as well as mixtures of these solvents. This reaction can be conducted between about 0 to about 120 °C. Additional details for this reaction can be found in Example 5.

Scheme 7



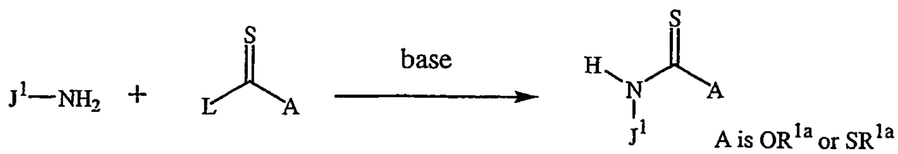
12

Id

As shown in Scheme 8, compounds of Formula **11** can be prepared by the reaction of amines of Formula **14** with a compound of Formula **15** in the presence of base. In the compounds of Formula **15**, L is halogen (e.g., Cl, Br, I), sulfonate (e.g. $OS(O)_2CH_3$ (methanesulfonate), $OS(O)_2CF_3$, $OS(O)_2Ph$-*p*-CH_3 (*p*-toluenesulfonate)), or azole (e.g. imidazole, 3,5-dimethylpyrazole, benzimidazole, benzotriazole, indazole, pyrazole, and 1,2,4-triazole). Suitable bases for the reaction include inorganic bases and organic bases as described above. Preferred bases are amine bases such as triethylamine and *N,N*-diisopropylethylamine. A wide variety of solvents can be suitable for this reaction, which include but are not limited to *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile,

tetrahydrofuran, acetone, alcohols and water as well as mixtures of these solvents. This reaction can be conducted between about 0 to about 120 °C.

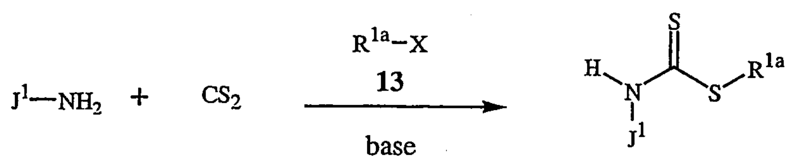
Scheme 8



14 15 11

As shown in Scheme 9, dithiocarbamates of Formula **11a** can be prepared by the reaction of carbon disulfide with amines of Formula **14** followed by reaction with an alkylating agent of Formula **13**. For a review of dithiocarbamate chemistry see *Angewandte Chem., Int. Ed.*, **1967**, *6*, 281-293. Suitable bases for the reaction include inorganic bases and organic bases as described above for the reaction shown in Scheme 2. Preferred bases are potassium carbonate, cesium carbonate, potassium hydroxide and sodium hydroxide. A wide variety of solvents are suitable for this reaction, which include but are not limited to *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile, tetrahydrofuran, acetone, alcohols and water as well as mixtures of these solvents. This reaction is conducted between about 0 to about 120 °C.

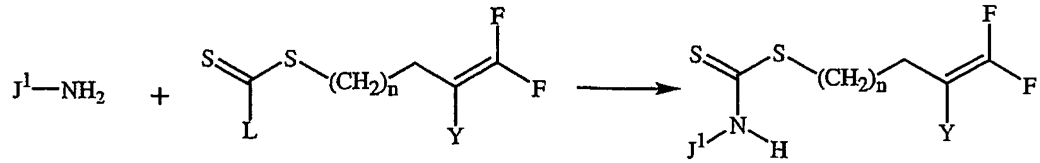
Scheme 9



14 11a

As shown in Scheme 10, dithiocarbamates of Formula **12** can be prepared by reacting compounds of Formula **16** with an amine of Formula **14** and a suitable base. In the compounds of Formula **16**, L is defined above as in compounds of Formula **15**. Preferred bases are amine bases such as triethylamine and *N,N*-diisopropylethylamine. A wide variety of solvents can be suitable for this reaction, which include but are not limited to *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile, tetrahydrofuran, acetone, alcohols and water as well as mixtures of the suitable solvents. This reaction can be conducted between about 0 to about 120 °C.

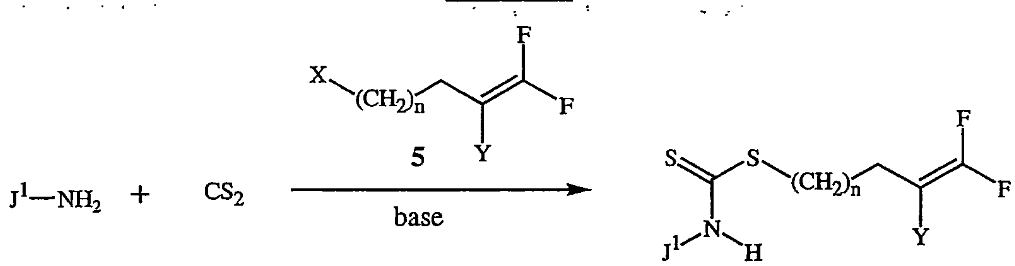
Scheme 10



14 16 12

As shown in Scheme 11, dithiocarbamates of Formula **12** can also be prepared by the reaction of carbon disulfide with an amine of Formula **14** followed by reaction with a difluoroalkenyl compound of Formula **5**. For a review of dithiocarbamates chemistry see *Angewandte Chem.*, Int. Ed., **1967**, *6*, 281-293. Preferred bases are potassium carbonate, cesium carbonate, potassium hydroxide and sodium hydroxide. A wide variety of solvents can be suitable for this reaction, which include but are not limited to *N,N*-dimethylformamide, dimethylsulfoxide, acetonitrile, tetrahydrofuran, acetone, alcohols and water as well as mixtures of the suitable solvents. This reaction can be conducted between about 0 to about 120 °C. For leading references to prepare dithiocarbamates of Formula **12** see, *Tetrahedron Lett*, **2001**, *42*, 2055-2058, and *Tetrahedron*, **2002**, *58*, 3329-3347.

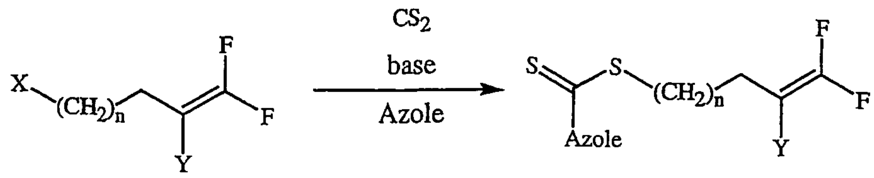
Scheme 11



14 12

As shown in Scheme 12, dithiocarbonylazoles of Formula **17** (Formula **16** where L is an azole) can be prepared by the reaction of carbon disulfide with an azole followed by reaction with difluoroalkenyl compounds of Formula **5**. Suitable azoles include, for example, but are not limited to imidazole, 3,5-dimethylpyrazole, benzimidazole, benzotriazole, indazole, pyrazole, 1,2,4-triazole and *N*-alkylimidazolium. For leading references to prepare dithiocarbonylazoles see, *Tetrahedron*, **2000**, *56*, 629-637, *J. Org. Chem.*, **1978**, *43*, 337-339, and the references cited therein.

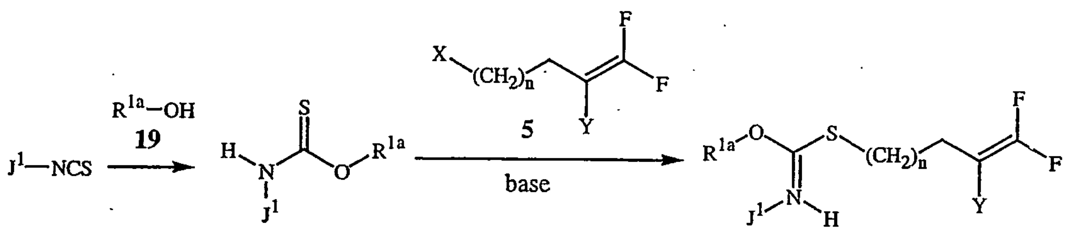
Scheme 12



5 17

Intermediates of Formula **11b** can be synthesized by the reaction of isothiocyanates of Formula **18** with alcohols of Formula **19** as shown in Scheme 13. The reaction can be carried out in a wide variety of solvents and temperatures. If the compounds of Formula **18** and **19** are liquids, a solvent may not be needed. Preferred solvents include tetrahydrofuran, *N,N*-dimethylformamide, dichloromethane, acetone or acetonitrile, and optimum temperatures range from room temperature to the reflux temperature of the solvent. Intermediates of Formula **11b** can be converted to compounds of Formula **Ie**, a subset of the compounds of Formula **I**, by the method described previously in Scheme 6.

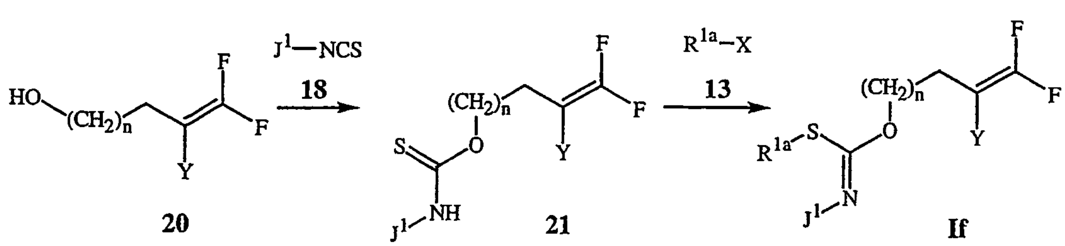
Scheme 13



18 11b Ie

As shown in Scheme 14, an isothiocyanate of Formula **18** can be reacted with an alcohol of Formula **20** to produce an intermediate of Formula **21**. Compounds of Formula **21** can then be transformed to compounds of Formula **If** by methods outlined in Scheme 7. The reaction of alcohols of Formula **20** with isothiocyanates may be carried out in a wide variety of solvents and temperatures. It may also be carried out without the need for solvent. Preferred solvents include tetrahydrofuran, dimethylformamide, dichloromethane, acetone or acetonitrile with optimum temperatures ranging from room temperature to the reflux temperature of the solvent. The alcohols of Formula **20** are known compounds.

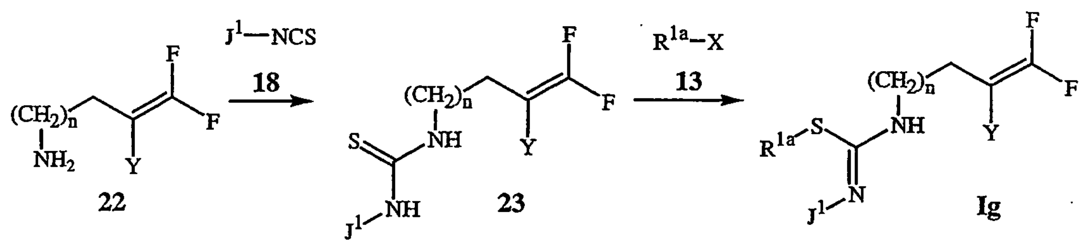
Scheme 14



20 21 If

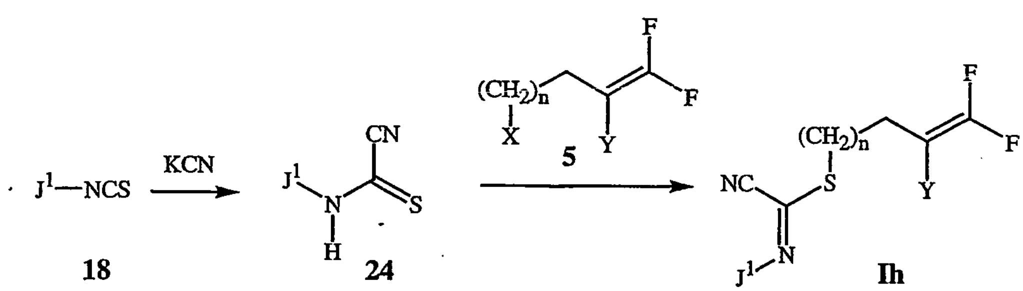
Compounds of Formula **23** can be made as shown in Scheme 15 by the reaction of an amine of Formula **22** with an isothiocyanate of Formula **18**. The reaction of amines of Formula **22** with isothiocyanates can be carried out in a wide variety of solvents and temperatures. If the compounds of Formula **18** and **23** are liquids, a solvent may not be needed. Preferred solvents include tetrahydrofuran, *N,N*-dimethylformamide, dichloromethane, acetone or acetonitrile, and optimum temperatures range from room temperature to the reflux temperature of the solvent. Compounds of Formula **23** can be further transformed to compounds of Formula **Ig** by reaction with an alkyl halide of Formula **13** as outlined in Scheme 15. The amines of Formula **22** are known compounds.

Scheme 15



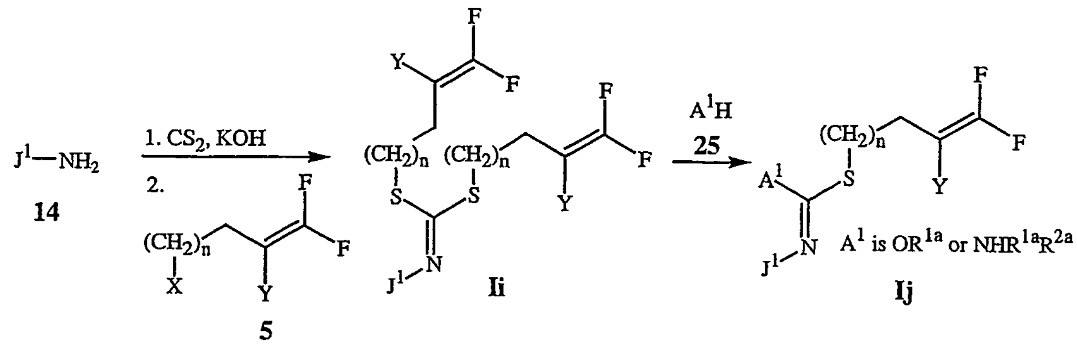
Compounds of Formula **24** can be made as shown in Scheme 16 by the reaction of KCN with an isothiocyanate of Formula **18**. The reaction can be carried out in a variety of solvents and temperatures. Compounds of Formula **24** can be further transformed to compounds of Formula **Ih** by reaction with a difluoroalkenyl halide of Formula **5** as outlined in Scheme 6. Further details on the procedures for preparation of compounds of Formula **Ih** are provided in Example 11.

Scheme 16



A useful procedure for the preparation of compounds of Formula **Ii** and **Ij** is shown in Scheme 17. Compound **Ii** is prepared in a two step synthesis involving the reaction of a compound of Formula **14** with carbon disulfide in the presence of base followed by the addition of two equivalents of the difluoroalkenyl compound **5** to give the compound of Formula **Ii**. Selective displacement with one equivalent of either an amine or alcohol (Formula **25**) affords the compound of Formula **Ij**. Examples 6, 9 and 10 provide further details for this method.

Scheme 17



It is recognized that some reagents and reaction conditions described above for preparing compounds of Formula I may not be compatible with certain functionalities present in the intermediates. In these instances, the incorporation of protection/deprotection sequences or functional group interconversions into the synthesis will aid in obtaining the desired products. The use and choice of the protecting groups will be apparent to one skilled in chemical synthesis (see, for example, Greene, T. W.; Wuts, P. G. M. *Protective Groups in Organic Synthesis*, 2nd ed.; Wiley: New York, 1991). One skilled in the art will recognize that, in some cases, after the introduction of a given reagent as it is depicted in any individual scheme, it may be necessary to perform additional routine synthetic steps not described in detail to complete the synthesis of compounds of Formula I. One skilled in the art will also recognize that it may be necessary to perform a combination of the steps illustrated in the above schemes in an order other than that implied by the particular sequence presented to prepare the compounds of Formula I.

One skilled in the art will also recognize that compounds of Formula I and the intermediates described herein can be subjected to various electrophilic, nucleophilic, radical, organometallic, oxidation, and reduction reactions to add substituents or modify existing substituents.

Without further elaboration, it is believed that one skilled in the art using the preceding description can utilize the present invention to its fullest extent. The materials and methods described herein and the following Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Percentages are by weight except for chromatographic solvent mixtures or where otherwise indicated. Parts and percentages for chromatographic solvent mixtures are by volume unless otherwise indicated. ^{1}H NMR spectra are reported in ppm downfield from tetramethylsilane; s means singlet, d means doublet, t means triplet, q means quartet, m means multiplet, dd means doublet of doublets, dt means doublet of triplets, bs means broad singlet, bt means broad triplet, and bm means broad multiplet.

EXAMPLE 1

Preparation of 4,4-Difluoro-3-butenyl-*N'*-(2-fluorophenyl)-*N,N*-dimethylcarbamimidothioate

Step A: Preparation of 3-(2-Fluorophenyl)-1,1-dimethylthiourea

To a 100 mL single-necked flask equipped with a magnetic stirrer and nitrogen inlet was charged 30 mL of acetonitrile and 2.0 g (0.013 mol) of 2-fluorophenyl isothiocyanate followed by 13.0 mL (0.026 mol) of 2 M dimethylamine in THF. The mixture was stirred at 25 °C for 18 h. The resulting mixture was concentrated *in vacuo* to a yellow solid, which was slurried in diethyl ether (150 mL). The solid was collected by filtration and air dried to afford (2.3 g, 89% yield) the title compound as a pale yellow solid.

^{1}H NMR (DMSO-d_6) δ 8.89 (s, 1H), 7.20 (m, 4H), 3.28 (s, 6H).

Step B: Preparation of 4,4-Difluoro-3-butenyl-*N'*-(2-fluorophenyl)-*N,N*-dimethylcarbamimidothioate

To a 100 mL single-necked flask equipped with a magnetic stirrer and nitrogen inlet was charged 30 mL of acetone and 1.15 g (0.0058 mol) of 3-(2-fluorophenyl)-1,1-dimethylthiourea (i.e. the product of Step A). The resulting mixture was treated with 1.75 mL (0.0087 mol) of 4-bromo-1,1-difluoro-1-butene followed by 1.2 g (0.0087 mol) of potassium carbonate. The mixture was stirred at 25 °C for 18 h. The resulting mixture was filtered and concentrated. The residue was chromatographed on silica gel using ethyl acetate/hexanes as eluent to give the title compound (0.594 g, 36% yield), a compound of the present invention, as a yellow oil.

^{1}H NMR ($CDCl_3$) δ 7.0 (bm, 4H), 4.0 (dt, 1H), 3.1 (s, 6H), 5 (bt, 2H), 2.12 (m, 2H).

EXAMPLE 2

Preparation of 4,4-Difluoro-3-butenyl *N*-(2,4-difluorophenyl)-*N'*-methylcarbamimidothioate

Step A: Preparation of 1-(2,4-Difluorophenyl)-3-methylthiourea

To a 100 mL single-necked flask equipped with a magnetic stirrer and nitrogen inlet was charged 30 mL of acetonitrile and 4.0 g (0.024 mol) of 2,4-difluorophenyl isothiocyanate followed by 3.8 g (0.048 mol) of 40 wt% methylamine in ethanol. The mixture was stirred at 25 °C for 18 h. The resulting mixture was concentrated *in vacuo* to a yellow solid, which was slurried in diethyl ether (150 mL). The solid was collected by filtration and air dried to afford (3.7 g, 76% yield) of the title compound as a pale yellow solid.

^{1}H NMR (DMSO-d_6) δ 9.23 (bs, 1H), 7.76 (bs, 1H), 7.51 (bs, 1H), 7.30 (m, 1H), 7.08 (m, 1H), 2.90 (d, 3H).

Step B: Preparation of 4,4-Difluoro-3-butenyl *N*-(2,4-difluorophenyl)-*N'*-methylcarbamimidothioate

To a 100 mL single-necked flask equipped with a magnetic stirrer and nitrogen inlet was charged 30 mL of acetone and 0.75 g (0.004 mol) of 1-(2,4-difluorophenyl)-3-methyl-

thiourea (i.e. the product of Step A). The resulting mixture was treated with 0.95 g (0.0056 mol) of 4-bromo-1,1-difluoro-1-butene followed by 0.773 g (0.005 mol) of potassium carbonate. The mixture was stirred at 25°C for 18 h. The resulting mixture was filtered and concentrated. The residue was chromatographed on silica gel using ethyl acetate/hexanes as eluent to give the title compound (0.255 g, 22% yield), a compound of the present invention, as yellow oil.

^{1}H NMR ($CDCl_3$) δ 6.84 (m, 3H), 4.72 (bs, 1H), 4.17 (dt, 1H), 2.95 (s, 3H), 2.77 (bm, 2H), 2.29 (bs, 2H).

EXAMPLE 3

Preparation of 1-(2,4-Dichlorophenyl)ethanone *O*-(4,4-difluoro-3-butenyl)oxime

To a 100 mL single-necked flask equipped with a magnetic stirrer and nitrogen inlet was charged 30 mL of acetone and 0.5 g (0.0024 mol) of 1-(2,4-dichlorophenyl)ethanone oxime followed by 0.55 g (0.0037 mol) of potassium carbonate and 0.628 g (0.0037 mol) of 4-bromo-1,1-difluoro-1-butene. After stirring at 25°C for 18 h, the mixture was filtered and concentrated to afford the title compound (0.129 g, 18% yield), a compound of the present invention, as an amber liquid.

^{1}H NMR ($CDCl_3$) δ 7.4 (m, 1H), 7.24 (d, 2H), 4.24 (dt, 1H), 4.17 (t, 2H), 2.39 (m, 2H) 2.19 (s, 3H).

EXAMPLE 4

Preparation of Methyl *N*-[(4,4-difluoro-3-butenyl)oxy]-2-(dimethylamino)-2-oxoethanimidothioate

To a 100 mL single-necked flask equipped with a magnetic stirrer and nitrogen inlet was charged 30 mL of acetone and 1.0 g (0.006 mol) of methyl 2-dimethylamino-*N*-hydroxy-2-oxoethanimidothionate followed by 1.66 g (0.012 mol) of potassium carbonate and 2.05 g (0.012 mol) of 4-bromo-1,1-difluoro-1-butene. After stirring at 25°C for 18 h, the mixture was concentrated. The residue was chromatographed on silica gel using ethyl acetate/hexanes as eluent to give the title compound (0.05 g, 3.3% yield), a compound of the present invention, as an amber liquid.

^{1}H NMR ($CDCl_3$) δ 4.23 (dt, 1H), 4.15 (t, 2H), 3.07(d, 6H), 2.36 (m, 2H), 2.27 (s, 3H).

EXAMPLE 5

Preparation of 4,4-Difluoro-3-butenyl methyl cyanocarbonimidodithioate

To a solution of cyanimidodithiocarbonic acid monomethylester mono potassium salt (0.5 g) in *N,N*-dimethylformamide (5 mL) was added 4-bromo-1,1-difluorobutene (0.5 g) and the mixture was stirred at 23 °C for 20 hours. The reaction mixture was partitioned between 20 mL of water and ethyl acetate (2 x 50 mL). The combined organic layers were washed with water (4 x 20 mL), dried over magnesium sulfate and concentrated. The

residue was chromatographed on silica gel using ethyl acetate/hexanes (gradient 1:9 to 1:1) as eluent to give the title compound (220 mg), a compound of the present invention, as yellow oil.

^{1}H NMR ($CDCl_3$) δ 2.43 (2H), 2.66 (3H), 3.2 (2H), 4.2 (1H).

EXAMPLE 6

Preparation of Bis(4,4-difluoro-3-butenyl) [3-chloro-5-(trifluoromethyl)-2-pyridinyl] carbonimidodithioate

To a solution of 2-amino-3-chloro-5-trifluoromethylpyridine (688 mg, 3.50 mmol), cesium carbonate (1.1 g, 5.26 mmol), and tetrabutylammonium iodide (648 mg, 1.75 mmol) in anhydrous *N,N*-dimethylformamide (5 mL) were added carbon disulfide (316 μL, 5.26 mmol) and 4-bromo-1,1-difluorobutene (300 mg, 1.75 mmol) sequentially at 0 °C. The reaction mixture was allowed to warm to room temperature and stirred for 5 hours. Then the reaction mixture was partitioned between water (3 x 30 mL) and ethyl acetate (30 mL). The organic layer was dried over magnesium sulfate and concentrated. The residue was chromatographed on silica gel using ethyl acetate/hexanes as eluent to give the title compound (120 mg), a compound of the present invention, as a pale yellow oil.

^{1}H NMR ($CDCl_3$) δ 8.57 (s, 1H), 7.94 (s, 1H), 4.25 (m, 2H), 3.2 (t, 4H), 2.45 (m, 4H).

EXAMPLE 7

Preparation of Bis(4,4-difluoro-3-butenyl) cyanocarbonimidodithioate

Step A: Preparation of dipotassium cyanodithioimidocarbonate

To a stirred solution of cyanamide (21.2 g, 0.50 mol) and carbon disulfide (42 g, 0.55 mol) cooled with an ice-salt bath was added an alcohol solution of potassium hydroxide (56.2 g, 1.00 mol, in 180 mL of 95% ethanol) dropwise over 2.5 h. The reaction temperature was maintained below 10 °C. Upon completion of the addition, the reaction mixture was allowed to warm to room temperature and stirred overnight. The insoluble solid was removed by filtration, rinsed with 95% ethanol, and dried under vacuum to provide the dipotassium cyanodithioimidocarbonate (72 g, 0.37 mol) in 75% yield.

Step B: Preparation of Bis(4,4-difluoro-3-butenyl) cyanocarbonimidodithioate

A mixture of dipotassium cyanodithioimidocarbonate (3.0 g, 15.5 mmol) and 4-bromo-1,1-difluoro-but-1-ene (7.9 g, 46.2 mmol) in methyl sulfoxide (20 mL) was stirred at 40 °C overnight. Then the reaction mixture was cooled to room temperature and partitioned between ethyl ether and water. The combined organic layers were washed with brine, dried (Na_2SO_4) and concentrated. The residue was chromatographed to afford the title compound (4.0 g, 13.4 mmol, 87% yield), a compound of the present invention, as a pale yellow oil.

^{1}H NMR ($CDCl_3$): 4.24 (dt, 2H), 3.23 (t, 4H), 2.44 (q, 4H).

EXAMPLE 8

Preparation of *S*-(4,4-Difluoro-3-butenyl) *O*-ethyl (ethoxycarbonyl)carbonimidothioate

Step A: Preparation of Diethyl thioimidodicarbonate

To 2.00 g (15.27 mmol) of ethoxycarbonyl isothiocyanate was added 20 mL of ethanol. The resulting solution was heated at 80 °C overnight. Removal of volatile organics *in vacuo* afforded 2.7 g of the title compound, mp 43-45 °C.

^{1}H NMR ($CDCl_3$): δ 1.30 (t, 3H), 1.43 (t, 3H), 4.23 (q, 2H), 4.61 (q, 2H), 8.16 (bs, 1H).

Step B: Preparation of *S*-(4,4-Difluoro-3-butenyl) *O*-ethyl (ethoxycarbonyl)carbonimidothioate

To a mixture of 47.00 g (265.54 mmol) of diethyl thioimidodicarbonate (i.e. the product of Step A) and 54.38 g (394.03 mmol) of potassium carbonate in 850 mL of acetone was added 49.95 g (292.09 mmol) of 4-bromo-1,1-difluorobut-1-ene. The resulting mixture was stirred at room temperature for around 3 days. The reaction mixture was filtered through Celite® (diatomaceous filter aid), washed with minimal acetone, and concentrated under reduced pressure. The crude material was purified by flash chromatography on silica using an automated collector and a gradient of hexanes to 90:10 hexanes: ethyl acetate. The resulting material was triturated with 100 mL of hexanes, cooled to -78 °C, and filtered to give 52.0 g of the title compound, mp 37-39 °C, a compound of the present invention.

^{1}H NMR ($CDCl_3$): δ 1.31–1.40 (m, 6H); 2.36 (m, 2H); 2.95 (t, 2H); 4.17-4.30 (m, 3H); 4.42 (q, 2H).

EXAMPLE 9

Preparation of *S*-(4,4-Difluoro-3-butenyl) *O*-methyl cyanocarbonimidothioate

To a stirred mixture of bis(4,4-difluoro-3-butenyl) cyanocarbonimidodithioate (i.e. the product of Example 7, 286 mg, 0.96 mmol) and MeOH (192 mg, 4.5 mmol) in acetonitrile (3 mL) was added a trace amount of sodium. After stirring at room temperature for 4.5 h, the reaction mixture was concentrated and the residue was purified by column chromatography to afford *S*-(4,4-difluoro-3-butenyl) *O*-methyl cyanocarbonimidothioate (17 mg, 0.083 mmol, 9% yield), a compound of the present invention, as a pale yellow oil.

^{1}H NMR ($CDCl_3$): 4.23 (dt, 1H), 4.04 (s, 3H), 3.09 (t, 2H), 2.39 (q, 2H).

EXAMPLE 10

Preparation of 4,4-Difluoro-3-butenyl *N'*-cyano-*N,N*-dimethylcarbamimidothioate

A mixture of bis(4,4-difluoro-3-butenyl) cyanocarbonimidodithioate (i.e. the product of Example 7, 102 mg, 0.34 mmol) and dimethylamine (0.34 mL, 0.68 mmol, 2.0 M in THF) in acetonitrile (2 mL) was stirred at room temperature for 0.5 h. The reaction mixture was concentrated, and the residue was purified by column chromatography to afford 4,4-difluoro-

3-butenyl *N'*-cyano-*N,N*-dimethylcarbamimidothioate (61 mg, 0.28 mmol, 81% yield), a compound of the present invention, as a pale yellow oil.

^{1}H NMR ($CDCl_3$): 4.25 (dt, 1H), 3.41 (t, 2H), 3.26 (s, 6H), 2.41 (q, 2H).

EXAMPLE 11

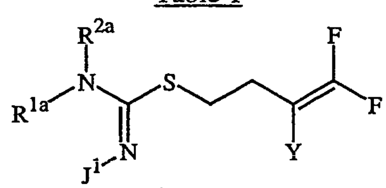
Preparation of 4,4-Difluoro-3-butenyl phenylcarbonocyanidimidothioate

A mixture of 1-cyanothioformanalide (373 mg, 2.3 mmol), 1,1-difluoro-1-butenyl-bromide (314 μL, 2.8 mmol) and potassium carbonate (981 mg , 7.0 mmol) in 3 mL of acetonitrile was heated at 85 °C for 2 h. The reaction mixture was then filtered and concentrated in *vacuo*. The crude product was purified by chromatography on silica gel using ethyl acetate/hexanes (1:9 mixture) as eluent to give 326 mg of the title product, a compound of the present invention, as light yellow oil.

^{1}H NMR ($CDCl_3$): 7.40 (m, 2H), 7.27 (m, 1H), 7.06 (m, 2H), 4.23 (m, 1H), 3.25 (t, 2H), 2.45 (m, 2H).

By the procedures described herein together with methods known in the art, the following compounds of Tables 1 to 8 can be prepared. The following abbreviations are used in the Tables which follow: *t* means tertiary, *s* means secondary, *n* means normal, *i* means iso, *c* means cyclo, Me means methyl, Et means ethyl, Pr means propyl, *i*-Pr means isopropyl, Bu means butyl, Hex means hexyl, Ph means phenyl, SMe means methylthio, SO_2Me means methylsulfonyl, SO_2Et means ethylsulfonyl, SO_2Ph means phenylsulfonyl, CN means cyano, NO_2 means nitro, and 2-Cl-4-F means 2-chloro-4-fluoro, and other substituent abbreviations are defined analogously.

Table 1



J^1	R^{1a}	R^{2a}	Y	J^1	R^{1a}	R^{2a}	Y
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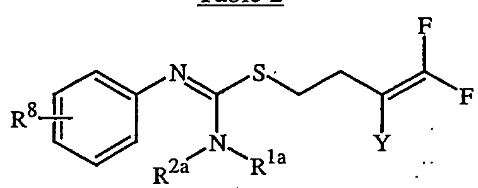
Et	H	H	H	Et	Me	H	H
i-Pr	H	H	H	*i*-Pr	Me	H	H
n-Bu	H	H	H	*n*-Bu	Me	H	H
s-Bu	H	H	H	*s*-Bu	Me	H	H
t-Bu	H	H	H	*t*-Bu	Me	H	H
t-BuCH$_2$	H	H	H	*t*-BuCH$_2$	Me	H	H
PhCH$_2$	H	H	H	PhCH$_2$	Me	H	H
4-Cl-PhCH$_2$	H	H	H	4-Cl-PhCH$_2$	Me	H	H
4-F-PhCH$_2$	H	H	H	4-F-PhCH$_2$	Me	H	H
2-Pyridyl	H	H	H	2-Pyridyl	Me	H	H

J^1	R^{1a}	R^{2a}	Y	J^1	R^{1a}	R^{2a}	Y
3-Pyridyl	H	H	H	3-Pyridyl	Me	H	H
4-Pyridyl	H	H	H	4-Pyridyl	Me	H	H
3-Pyridyl-CH_2	H	H	H	3-Pyridyl-CH_2	Me	H	H
6-Cl-3-Pyridyl-CH_2	H	H	H	6-Cl-3-Pyridyl-CH_2	Me	H	H
Me	Me	Me	H	Me	Ph	H	H
Et	Me	Me	H	Et	Ph	H	H
i-Pr	Me	Me	H	*i*-Pr	Ph	H	H
n-Bu	Me	Me	H	*n*-Bu	Ph	H	H
s-Bu	Me	Me	H	*s*-Bu	Ph	H	H
t-Bu	Me	Me	H	*t*-Bu	Ph	H	H
t-BuCH_2	Me	Me	H	*t*-BuCH_2	Ph	H	H
PhCH_2	Me	Me	H	PhCH_2	Ph	H	H
4-Cl-PhCH_2	Me	Me	H	4-Cl-PhCH_2	Ph	H	H
4-F-PhCH_2	Me	Me	H	4-F-PhCH_2	Ph	H	H
2-Pyridyl	Me	Me	H	2-Pyridyl	Ph	H	H
3-Pyridyl	Me	Me	H	3-Pyridyl	Ph	H	H
4-Pyridyl	Me	Me	H	4-Pyridyl	Ph	H	H
3-Pyridyl-CH_2	Me	Me	H	3-Pyridyl-CH_2	Ph	H	H
6-Cl-3-Pyridyl-CH_2	Me	Me	H	6-Cl-3-Pyridyl-CH_2	Ph	H	H
Me	H	H	Me	Me	Me	H	Me
Et	H	H	Me	Et	Me	H	Me
i-Pr	H	H	Me	*i*-Pr	Me	H	Me
n-Bu	H	H	Me	*n*-Bu	Me	H	Me
s-Bu	H	H	Me	*s*-Bu	Me	H	Me
t-Bu	H	H	Me	*t*-Bu	Me	H	Me
t-BuCH_2	H	H	Me	*t*-BuCH_2	Me	H	Me
PhCH_2	H	H	Me	PhCH_2	Me	H	Me
4-Cl-PhCH_2	H	H	Me	4-Cl-PhCH_2	Me	H	Me
4-F-PhCH_2	H	H	Me	4-F-PhCH_2	Me	H	Me
2-Pyridyl	H	H	Me	2-Pyridyl	Me	H	Me
3-Pyridyl	H	H	Me	3-Pyridyl	Me	H	Me
4-Pyridyl	H	H	Me	4-Pyridyl	Me	H	Me
3-Pyridyl-CH_2	H	H	Me	3-Pyridyl-CH_2	Me	H	Me
6-Cl-3-Pyridyl-CH_2	H	H	Me	6-Cl-3-Pyridyl-CH_2	Me	H	Me
Me	Me	Me	Me	Me	Ph	H	Me
Et	Me	Me	Me	Et	Ph	H	Me
i-Pr	Me	Me	Me	*i*-Pr	Ph	H	Me

J^1	R^{1a}	R^{2a}	Y	J^1	R^{1a}	R^{2a}	Y
n-Bu	Me	Me	Me	*n*-Bu	Ph	H	Me
s-Bu	Me	Me	Me	*s*-Bu	Ph	H	Me
t-Bu	Me	Me	Me	*t*-Bu	Ph	H	Me
t-$BuCH_2$	Me	Me	Me	*t*-$BuCH_2$	Ph	H	Me
$PhCH_2$	Me	Me	Me	$PhCH_2$	Ph	H	Me
4-Cl-$PhCH_2$	Me	Me	Me	4-Cl-$PhCH_2$	Ph	H	Me
4-F-$PhCH_2$	Me	Me	Me	4-F-$PhCH_2$	Ph	H	Me
2-Pyridyl	Me	Me	Me	2-Pyridyl	Ph	H	Me
3-Pyridyl	Me	Me	Me	3-Pyridyl	Ph	H	Me
4-Pyridyl	Me	Me	Me	4-Pyridyl	Ph	H	Me
3-Pyridyl-CH_2	Me	Me	Me	3-Pyridyl-CH_2	Ph	H	Me
6-Cl-3-Pyridyl-CH_2	Me	Me	Me	6-Cl-3-Pyridyl-CH_2	Ph	H	Me

Table 2



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H	H	2-Me	H	Me	H	2-Me	H
H	H	2-OMe	H	Me	H	2-OMe	H
H	H	2-SMe	H	Me	H	2-SMe	H
H	H	2-CF_3	H	Me	H	2-CF_3	H
H	H	2-CN	H	Me	H	2-CN	H
H	H	2-NO_2	H	Me	H	2-NO_2	H
H	H	3-Cl	H	Me	H	3-Cl	H
H	H	3-F	H	Me	H	3-F	H
H	H	3-Me	H	Me	H	3-Me	H
H	H	3-OMe	H	Me	H	3-OMe	H
H	H	3-SMe	H	Me	H	3-SMe	H
H	H	3-CF_3	H	Me	H	3-CF_3	H
H	H	3-CN	H	Me	H	3-CN	H
H	H	3-NO_2	H	Me	H	3-NO_2	H
H	H	4-Cl	H	Me	H	4-Cl	H

R^{1a}	R^{2a}	R^8	Y	R^{1a}	R^{2a}	R^8	Y
H	H	4-F	H	Me	H	4-F	H
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H	H	4-OMe	H	Me	H	4-OMe	H
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H	H	4-CF_3	H	Me	H	4-CF_3	H
H	H	4-CN	H	Me	H	4-CN	H
H	H	4-NO_2	H	Me	H	4-NO_2	H
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R^{1a}	R^{2a}	R^8	Y	R^{1a}	R^{2a}	R^8	Y
Me	Me	3-CF_3	H	Me	Me	3-CF_3	Me
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Me	Me	4-CF_3	H	Me	Me	4-CF_3	Me
Me	Me	4-CN	H	Me	Me	4-CN	Me
Me	Me	4-NO_2	H	Me	Me	4-NO_2	Me
Me	Me	2,3-di-F	H	Me	Me	2,3-di-F	Me
Me	Me	2,4-di-F	H	Me	Me	2,4-di-F	Me
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Me	Me	2-F-4-CF_3-6-F	H	Me	Me	2-F-4-CF_3-6-F	Me
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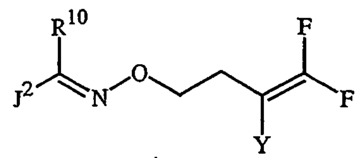
H	H	2-Me	Me	Me	H	2-Me	Me
H	H	2-OMe	Me	Me	H	2-OMe	Me
H	H	2-SMe	Me	Me	H	2-SMe	Me
H	H	2-CF_3	Me	Me	H	2-CF_3	Me
H	H	2-CN	Me	Me	H	2-CN	Me
H	H	2-NO_2	Me	Me	H	2-NO_2	Me
H	H	3-Cl	Me	Me	H	3-Cl	Me

R^{1a}	R^{2a}	R^8	Y	R^{1a}	R^{2a}	R^8	Y
H	H	3-F	Me	Me	H	3-F	Me
H	H	3-Me	Me	Me	H	3-Me	Me
H	H	3-OMe	Me	Me	H	3-OMe	Me
H	H	3-SMe	Me	Me	H	3-SMe	Me
H	H	3-CF_3	Me	Me	H	3-CF_3	Me
H	H	3-CN	Me	Me	H	3-CN	Me
H	H	3-NO_2	Me	Me	H	3-NO_2	Me
H	H	4-Cl	Me	Me	H	4-Cl	Me
H	H	4-F	Me	Me	H	4-F	Me
H	H	4-Me	Me	Me	H	4-Me	Me
H	H	4-OMe	Me	Me	H	4-OMe	Me
H	H	4-SMe	Me	Me	H	4-SMe	Me
H	H	4-CF_3	Me	Me	H	4-CF_3	Me
H	H	4-CN	Me	Me	H	4-CN	Me
H	H	4-NO_2	Me	Me	H	4-NO_2	Me
H	H	2,3-di-F	Me	Me	H	2,3-di-F	Me
H	H	2,4-di-F	Me	Me	H	2,4-di-F	Me
H	H	2,5-di-F	Me	Me	H	2,5-di-F	Me
H	H	2,6-di-F	Me	Me	H	2,6-di-F	Me
H	H	3,4-di-F	Me	Me	H	3,4-di-F	Me
H	H	3,5-di-F	Me	Me	H	3,5-di-F	Me
H	H	2,3-di-Cl	Me	Me	H	2,3-di-Cl	Me
H	H	2,4-di-Cl	Me	Me	H	2,4-di-Cl	Me
H	H	2,5-di-Cl	Me	Me	H	2,5-di-Cl	Me
H	H	2,6-di-Cl	Me	Me	H	2,6-di-Cl	Me
H	H	3,4-di-Cl	Me	Me	H	3,4-di-Cl	Me
H	H	3,5-di-Cl	Me	Me	H	3,5-di-Cl	Me
H	H	2,4,6-tri-F	Me	Me	H	2,4,6-tri-F	Me
H	H	2,4,6-tri-Cl	Me	Me	H	2,4,6-tri-Cl	Me
H	H	2-F-4-CF_3-6-F	Me	Me	H	2-F-4-CF_3-6-F	Me
H	H	2-Cl-4-CF_3-6-Cl	Me	Me	H	2-Cl-4-CF_3-6-Cl	Me

Table 3

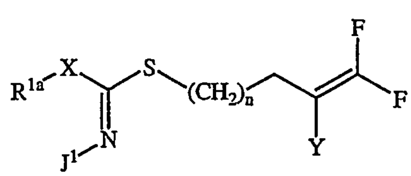


J^2	R^{10}	Y	J^2	R^{10}	Y
Me	Me	H	Me	Me	F
Et	Me	H	Et	Me	F
i-Pr	Me	H	*i*-Pr	Me	F
t-Bu	Me	H	*t*-Bu	Me	F
Me	SMe	H	Me	SMe	F
$CONMe_2$	SMe	H	$CONMe_2$	SMe	F
Me	Me	Me	*t*-Bu	Me	Me
Et	Me	Me	Me	SMe	Me
i-Pr	Me	Me	$CONMe_2$	SMe	Me
Ph	H	H	Ph	Me	H
2-Cl-Ph	H	H	2-Cl-Ph	Me	H
2-F-Ph	H	H	2-F-Ph	Me	H
2-CF_3-Ph	H	H	2-CF_3-Ph	Me	H
2-CN-Ph	H	H	2-CN-Ph	Me	H
3-Cl-Ph	H	H	3-Cl-Ph	Me	H
3-F-Ph	H	H	3-F-Ph	Me	H
3-CF_3-Ph	H	H	3-CF_3-Ph	Me	H
3-CN-Ph	H	H	3-CN-Ph	Me	H
4-Cl-Ph	H	H	4-Cl-Ph	Me	H
4-F-Ph	H	H	4-F-Ph	Me	H
4-CF_3-Ph	H	H	4-CF_3-Ph	Me	H
4-CN-Ph	H	H	4-CN-Ph	Me	H
2,4-di-F-Ph	H	H	2,4-di-F-Ph	Me	H
2,6-di-F-Ph	H	H	2,6-di-F-Ph	Me	H
2,4-di-Cl-Ph	H	H	2,4-di-Cl-Ph	Me	H
2,6-di-Cl-Ph	H	H	2,6-di-Cl-Ph	Me	H
2-F-4-CF_3-6-F-Ph	H	H	2-F-4-CF_3-6-F-Ph	Me	H
2-Cl-4-CF_3-6-Cl-Ph	H	H	2-Cl-4-CF_3-6-Cl-Ph	Me	H
Ph	CN	H	Ph	H	F
2-Cl-Ph	CN	H	2-Cl-Ph	H	F
2-F-Ph	CN	H	2-F-Ph	H	F

J^2	R^{10}	Y	J^2	R^{10}	Y
2-CF_3-Ph	CN	H	2-CF_3-Ph	H	F
2-CN-Ph	CN	H	2-CN-Ph	H	F
3-Cl-Ph	CN	H	3-Cl-Ph	H	F
3-F-Ph	CN	H	3-F-Ph	H	F
3-CF_3-Ph	CN	H	3-CF_3-Ph	H	F
3-CN-Ph	CN	H	3-CN-Ph	H	F
4-Cl-Ph	CN	H	4-Cl-Ph	H	F
4-F-Ph	CN	H	4-F-Ph	H	F
4-CF_3-Ph	CN	H	4-CF_3-Ph	H	F
4-CN-Ph	CN	H	4-CN-Ph	H	F
2,4-di-F-Ph	CN	H	2,4-di-F-Ph	H	F
2,6-di-F-Ph	CN	H	2,6-di-F-Ph	H	F
2,4-di-Cl-Ph	CN	H	2,4-di-Cl-Ph	H	F
2,6-di-Cl-Ph	CN	H	2,6-di-Cl-Ph	H	F
2-F-4-CF_3-6-F-Ph	CN	H	2-F-4-CF_3-6-F-Ph	H	F
2-Cl-4-CF_3-6-Cl-Ph	CN	H	2-Cl-4-CF_3-6-Cl-Ph	H	F
Ph	Me	F	Ph	CN	F
2-Cl-Ph	Me	F	2-Cl-Ph	CN	F
2-F-Ph	Me	F	2-F-Ph	CN	F
2-CF_3-Ph	Me	F	2-CF_3-Ph	CN	F
2-CN-Ph	Me	F	2-CN-Ph	CN	F
3-Cl-Ph	Me	F	3-Cl-Ph	CN	F
3-F-Ph	Me	F	3-F-Ph	CN	F
3-CF_3-Ph	Me	F	3-CF_3-Ph	CN	F
3-CN-Ph	Me	F	3-CN-Ph	CN	F
4-Cl-Ph	Me	F	4-Cl-Ph	CN	F
4-F-Ph	Me	F	4-F-Ph	CN	F
4-CF_3-Ph	Me	F	4-CF_3-Ph	CN	F
4-CN-Ph	Me	F	4-CN-Ph	CN	F
2,4-di-F-Ph	Me	F	2,4-di-F-Ph	CN	F
2,6-di-F-Ph	Me	F	2,6-di-F-Ph	CN	F
2,4-di-Cl-Ph	Me	F	2,4-di-Cl-Ph	CN	F
2,6-di-Cl-Ph	Me	F	2,6-di-Cl-Ph	CN	F
2-F-4-CF_3-6-F-Ph	Me	F	2-F-4-CF_3-6-F-Ph	CN	F
2-Cl-4-CF_3-6-Cl-Ph	Me	F	2-Cl-4-CF_3-6-Cl-Ph	CN	F
Ph	H	Me	Ph	Me	Me
2-Cl-Ph	H	Me	2-Cl-Ph	Me	Me

J^2	R^{10}	Y	J^2	R^{10}	Y
2-F-Ph	H	Me	2-F-Ph	Me	Me
2-CF_3-Ph	H	Me	2-CF_3-Ph	Me	Me
2-CN-Ph	H	Me	2-CN-Ph	Me	Me
3-Cl-Ph	H	Me	3-Cl-Ph	Me	Me
3-F-Ph	H	Me	3-F-Ph	Me	Me
3-CF_3-Ph	H	Me	3-CF_3-Ph	Me	Me
3-CN-Ph	H	Me	3-CN-Ph	Me	Me
4-Cl-Ph	H	Me	4-Cl-Ph	Me	Me
4-F-Ph	H	Me	4-F-Ph	Me	Me
4-CF_3-Ph	H	Me	4-CF_3-Ph	Me	Me
4-CN-Ph	H	Me	4-CN-Ph	Me	Me
2,4-di-F-Ph	H	Me	2,4-di-F-Ph	Me	Me
2,6-di-F-Ph	H	Me	2,6-di-F-Ph	Me	Me
2,4-di-Cl-Ph	H	Me	2,4-di-Cl-Ph	Me	Me
2,6-di-Cl-Ph	H	Me	2,6-di-Cl-Ph	Me	Me
2-F-4-CF_3-6-F-Ph	H	Me	2-F-4-CF_3-6-F-Ph	Me	Me
2-Cl-4-CF_3-6-Cl-Ph	H	Me	2-Cl-4-CF_3-6-Cl-Ph	Me	Me
Ph	CN	Me	4-F-Ph	CN	Me
2-Cl-Ph	CN	Me	4-CF_3-Ph	CN	Me
2-F-Ph	CN	Me	4-CN-Ph	CN	Me
2-CF_3-Ph	CN	Me	2,4-di-F-Ph	CN	Me
2-CN-Ph	CN	Me	2,6-di-F-Ph	CN	Me
3-Cl-Ph	CN	Me	2,4-di-Cl-Ph	CN	Me
3-F-Ph	CN	Me	2,6-di-Cl-Ph	CN	Me
3-CF_3-Ph	CN	Me	2-F-4-CF_3-6-F-Ph	CN	Me
3-CN-Ph	CN	Me	2-Cl-4-CF_3-6-Cl-Ph	CN	Me
4-Cl-Ph	CN	Me			

Table 4



J^1	R^{1a}	n	X	Y	J^1	R^{1a}	n	X	Y
Me	Me	1	S	H	Me	Me	3	S	H
Et	Me	1	S	H	Et	Me	3	S	H
i-Pr	Me	1	S	H	*i*-Pr	Me	3	S	H

J^1	R^{1a}	n	X	Y	J^1	R^{1a}	n	X	Y
n-Bu	Me	1	S	H	*n*-Bu	Me	3	S	H
s-Bu	Me	1	S	H	*s*-Bu	Me	3	S	H
t-Bu	Me	1	S	H	*t*-Bu	Me	3	S	H
t-BuCH_2	Me	1	S	H	*t*-BuCH_2	Me	3	S	H
PhCH_2	Me	1	S	H	PhCH_2	Me	3	S	H
4-Cl-Ph	Me	1	S	H	4-Cl-Ph	Me	3	S	H
4-F-PhCH_2	Me	1	S	H	4-F-PhCH_2	Me	3	S	H
2-Pyridyl	Me	1	S	H	2-Pyridyl	Me	3	S	H
3-Pyridyl	Me	1	S	H	3-Pyridyl	Me	3	S	H
4-Pyridyl	Me	1	S	H	4-Pyridyl	Me	3	S	H
3-Pyridyl-CH_2	Me	1	S	H	3-Pyridyl-CH_2	Me	3	S	H
6-Cl-3-Pyridyl-CH_2	Me	1	S	H	6-Cl-3-Pyridyl-CH_2	Me	3	S	H
CN	Me	1	S	H	CN	Me	3	S	H
NO_2	Me	1	S	H	NO_2	Me	3	S	H
OMe	Me	1	S	H	OMe	Me	3	S	H
CO_2Me	Me	1	S	H	CO_2Me	Me	3	S	H
COMe	Me	1	S	H	COMe	Me	3	S	H
OH	Me	1	S	H	OH	Me	3	S	H
NMe_2	Me	1	S	H	NMe_2	Me	3	S	H
CONHMe	Me	1	S	H	CONHMe	Me	3	S	H
SO_2Me	Me	1	S	H	SO_2Me	Me	3	S	H
COPh	Me	1	S	H	COPh	Me	3	S	H
SO_2Ph	Me	1	S	H	SO_2Ph	Me	3	S	H
Ph	Me	1	S	H	Ph	Me	3	S	H
2-Cl-Ph	Me	1	S	H	2-Cl-Ph	Me	3	S	H
2-F-Ph	Me	1	S	H	2-F-Ph	Me	3	S	H
3-Cl-Ph	Me	1	S	H	3-Cl-Ph	Me	3	S	H
3-F-Ph	Me	1	S	H	3-F-Ph	Me	3	S	H
4-Cl-Ph	Me	1	S	H	4-Cl-Ph	Me	3	S	H
4-F-Ph	Me	1	S	H	4-F-Ph	Me	3	S	H
2-OMe-Ph	Me	1	S	H	2-OMe-Ph	Me	3	S	H
3-OMe -Ph	Me	1	S	H	3-OMe -Ph	Me	3	S	H
4-OMe-Ph	Me	1	S	H	4-OMe-Ph	Me	3	S	H
2,6-di-F-Ph	Me	1	S	H	2,6-di-F-Ph	Me	3	S	H
2,4-di-F-Ph	Me	1	S	H	2,4-di-F-Ph	Me	3	S	H
CH_2CN	Me	1	S	H	CH_2CN	Me	3	S	H
CH_2CO_2Et	Me	1	S	H	CH_2CO_2Et	Me	3	S	H

J^1	R^{1a}	n	X	Y	J^1	R^{1a}	n	X	Y
CH_2CH_2OMe	Me	1	S	H	CH_2CH_2OMe	Me	3	S	H
CH_2CH_2SMe	Me	1	S	H	CH_2CH_2SMe	Me	3	S	H
CH_2CH_2Cl	Me	1	S	H	CH_2CH_2Cl	Me	3	S	H
CH_2CF_3	Me	1	S	H	CH_2CF_3	Me	3	S	H
$CH_2CH_2CH_2F$	Me	1	S	H	$CH_2CH_2CH_2F$	Me	3	S	H
$CH_2CH_2NMe_2$	Me	1	S	H	$CH_2CH_2NMe_2$	Me	3	S	H
$CH_2CH_2CF_3$	Me	1	S	H	$CH_2CH_2CF_3$	Me	3	S	H
N-Morpholino	Me	1	S	H	*N*-Morpholino	Me	3	S	H
CH_2CO_2Me	Me	1	S	H	CH_2CO_2Me	Me	3	S	H
c-Pr	Me	1	S	H	*c*-Pr	Me	3	S	H
c-Bu	Me	1	S	H	*c*-Bu	Me	3	S	H
c-Hex	Me	1	S	H	*c*-Hex	Me	3	S	H
Allyl	Me	1	S	H	Allyl	Me	3	S	H
Propargyl	Me	1	S	H	Propargyl	Me	3	S	H
CH_2-*c*-Pr	Me	1	S	H	CH_2-*c*-Pr	Me	3	S	H
CH_2CH_2NH-*c*-Pr	Me	1	S	H	CH_2CH_2NH-*c*-Pr	Me	3	S	H
$CH_2CH_2SO_2Me$	Me	1	S	H	$CH_2CH_2SO_2Me$	Me	3	S	H
CH_2CH_2SOMe	Me	1	S	H	CH_2CH_2SOMe	Me	3	S	H
SO_2Et	Me	1	S	H	SO_2Et	Me	3	S	H
2-Naphthyl	Me	1	S	H	2-Naphthyl	Me	3	S	H
Me	Me	1	O	H	Me	Me	3	O	H
Et	Me	1	O	H	Et	Me	3	O	H
i-Pr	Me	1	O	H	*i*-Pr	Me	3	O	H
n-Bu	Me	1	O	H	*n*-Bu	Me	3	O	H
s-Bu	Me	1	O	H	*s*-Bu	Me	3	O	H
t-Bu	Me	1	O	H	*t*-Bu	Me	3	O	H
t-$BuCH_2$	Me	1	O	H	*t*-$BuCH_2$	Me	3	O	H
$PhCH_2$	Me	1	O	H	$PhCH_2$	Me	3	O	H
4-Cl-Ph	Me	1	O	H	4-Cl-Ph	Me	3	O	H
4-F-$PhCH_2$	Me	1	O	H	4-F-$PhCH_2$	Me	3	O	H
2-Pyridyl	Me	1	O	H	2-Pyridyl	Me	3	O	H
3-Pyridyl	Me	1	O	H	3-Pyridyl	Me	3	O	H
4-Pyridyl	Me	1	O	H	4-Pyridyl	Me	3	O	H
3-Pyridyl-CH_2	Me	1	O	H	3-Pyridyl-CH_2	Me	3	O	H
6-Cl-3-Pyridyl-CH_2	Me	1	O	H	6-Cl-3-Pyridyl-CH_2	Me	3	O	H
CN	Me	1	O	H	CN	Me	3	O	H
NO_2	Me	1	O	H	NO_2	Me	3	O	H

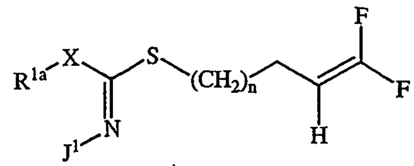
J^1	R^{1a}	n	X	Y	J^1	R^{1a}	n	X	Y
OMe	Me	1	O	H	OMe	Me	3	O	H
CO_2Me	Me	1	O	H	CO_2Me	Me	3	O	H
COMe	Me	1	O	H	COMe	Me	3	O	H
OH	Me	1	O	H	OH	Me	3	O	H
NMe_2	Me	1	O	H	NMe_2	Me	3	O	H
CONHMe	Me	1	O	H	CONHMe	Me	3	O	H
SO_2Me	Me	1	O	H	SO_2Me	Me	3	O	H
COPh	Me	1	O	H	COPh	Me	3	O	H
SO_2Ph	Me	1	O	H	SO_2Ph	Me	3	O	H
Ph	Me	1	O	H	Ph	Me	3	O	H
2-Cl-Ph	Me	1	O	H	2-Cl-Ph	Me	3	O	H
2-F-Ph	Me	1	O	H	2-F-Ph	Me	3	O	H
3-Cl-Ph	Me	1	O	H	3-Cl-Ph	Me	3	O	H
3-F-Ph	Me	1	O	H	3-F-Ph	Me	3	O	H
4-Cl-Ph	Me	1	O	H	4-Cl-Ph	Me	3	O	H
4-F-Ph	Me	1	O	H	4-F-Ph	Me	3	O	H
2-OMe-Ph	Me	1	O	H	2-OMe-Ph	Me	3	O	H
3-OMe -Ph	Me	1	O	H	3-OMe -Ph	Me	3	O	H
4-OMe-Ph	Me	1	O	H	4-OMe-Ph	Me	3	O	H
2,6-di-F-Ph	Me	1	O	H	2,6-di-F-Ph	Me	3	O	H
2,4-di-F-Ph	Me	1	O	H	2,4-di-F-Ph	Me	3	O	H
CH_2CN	Me	1	O	H	CH_2CN	Me	3	O	H
CH_2CO_2Et	Me	1	O	H	CH_2CO_2Et	Me	3	O	H
CH_2CH_2OMe	Me	1	O	H	CH_2CH_2OMe	Me	3	O	H
CH_2CH_2SMe	Me	1	O	H	CH_2CH_2SMe	Me	3	O	H
CH_2CH_2Cl	Me	1	O	H	CH_2CH_2Cl	Me	3	O	H
CH_2CF_3	Me	1	O	H	CH_2CF_3	Me	3	O	H
$CH_2CH_2CH_2F$	Me	1	O	H	$CH_2CH_2CH_2F$	Me	3	O	H
$CH_2CH_2NMe_2$	Me	1	O	H	$CH_2CH_2NMe_2$	Me	3	O	H
$CH_2CH_2CF_3$	Me	1	O	H	$CH_2CH_2CF_3$	Me	3	O	H
N-Morpholino	Me	1	O	H	*N*-Morpholino	Me	3	O	H
CH_2CO_2Me	Me	1	O	H	CH_2CO_2Me	Me	3	O	H
c-Pr	Me	1	O	H	*c*-Pr	Me	3	O	H
c-Bu	Me	1	O	H	*c*-Bu	Me	3	O	H
c-Hex	Me	1	O	H	*c*-Hex	Me	3	O	H
Allyl	Me	1	O	H	Allyl	Me	3	O	H
Propargyl	Me	1	O	H	Propargyl	Me	3	O	H

J^1	R^{1a}	n	X	Y
CH_2-*c*-Pr	Me	1	O	H
CH_2CH_2NH-*c*-Pr	Me	1	O	H
$CH_2CH_2SO_2Me$	Me	1	O	H
CH_2CH_2SOMe	Me	1	O	H
SO_2Et	Me	1	O	H
2-Naphthyl	Me	1	O	H
Me	Me	1	S	Me
Et	Me	1	S	Me
i-Pr	Me	1	S	Me
n-Bu	Me	1	S	Me
s-Bu	Me	1	S	Me
t-Bu	Me	1	S	Me
t-$BuCH_2$	Me	1	S	Me
$PhCH_2$	Me	1	S	Me
4-Cl-Ph	Me	1	S	Me
4-F-$PhCH_2$	Me	1	S	Me
2-Pyridyl	Me	1	S	Me
3-Pyridyl	Me	1	S	Me
4-Pyridyl	Me	1	S	Me
3-Pyridyl-CH_2	Me	1	S	Me
6-Cl-3-Pyridyl-CH_2	Me	1	S	Me
CN	Me	1	S	Me
NO_2	Me	1	S	Me
OMe	Me	1	S	Me
CO_2Me	Me	1	S	Me
COMe	Me	1	S	Me
OH	Me	1	S	Me
NMe_2	Me	1	S	Me
CONHMe	Me	1	S	Me
SO_2Me	Me	1	S	Me
COPh	Me	1	S	Me
SO_2Ph	Me	1	S	Me
Ph	Me	1	S	Me
2-Cl-Ph	Me	1	S	Me
2-F-Ph	Me	1	S	Me
3-Cl-Ph	Me	1	S	Me
3-F-Ph	Me	1	S	Me

J^1	R^{1a}	n	X	Y
CH_2-*c*-Pr	Me	3	O	H
CH_2CH_2NH-*c*-Pr	Me	3	O	H
$CH_2CH_2SO_2Me$	Me	3	O	H
CH_2CH_2SOMe	Me	3	O	H
SO_2Et	Me	3	O	H
2-Naphthyl	Me	3	O	H
Me	Me	3	S	Me
Et	Me	3	S	Me
i-Pr	Me	3	S	Me
n-Bu	Me	3	S	Me
s-Bu	Me	3	S	Me
t-Bu	Me	3	S	Me
t-$BuCH_2$	Me	3	S	Me
$PhCH_2$	Me	3	S	Me
4-Cl-Ph	Me	3	S	Me
4-F-$PhCH_2$	Me	3	S	Me
2-Pyridyl	Me	3	S	Me
3-Pyridyl	Me	3	S	Me
4-Pyridyl	Me	3	S	Me
3-Pyridyl-CH_2	Me	3	S	Me
6-Cl-3-Pyridyl-CH_2	Me	3	S	Me
CN	Me	3	S	Me
NO_2	Me	3	S	Me
OMe	Me	3	S	Me
CO_2Me	Me	3	S	Me
COMe	Me	3	S	Me
OH	Me	3	S	Me
NMe_2	Me	3	S	Me
CONHMe	Me	3	S	Me
SO_2Me	Me	3	S	Me
COPh	Me	3	S	Me
SO_2Ph	Me	3	S	Me
Ph	Me	3	S	Me
2-Cl-Ph	Me	3	S	Me
2-F-Ph	Me	3	S	Me
3-Cl-Ph	Me	3	S	Me
3-F-Ph	Me	3	S	Me

J^1	R^{1a}	n	X	Y	J^1	R^{1a}	n	X	Y
4-Cl-Ph	Me	1	S	Me	4-Cl-Ph	Me	3	S	Me
4-F-Ph	Me	1	S	Me	4-F-Ph	Me	3	S	Me
2-OMe-Ph	Me	1	S	Me	2-OMe-Ph	Me	3	S	Me
3-OMe -Ph	Me	1	S	Me	3-OMe -Ph	Me	3	S	Me
4-OMe-Ph	Me	1	S	Me	4-OMe-Ph	Me	3	S	Me
2,6-di-F-Ph	Me	1	S	Me	2,6-di-F-Ph	Me	3	S	Me
2,4-di-F-Ph	Me	1	S	Me	2,4-di-F-Ph	Me	3	S	Me
CH_2CN	Me	1	S	Me	CH_2CN	Me	3	S	Me
CH_2CO_2Et	Me	1	S	Me	CH_2CO_2Et	Me	3	S	Me
CH_2CH_2OMe	Me	1	S	Me	CH_2CH_2OMe	Me	3	S	Me
CH_2CH_2SMe	Me	1	S	Me	CH_2CH_2SMe	Me	3	S	Me
CH_2CH_2Cl	Me	1	S	Me	CH_2CH_2Cl	Me	3	S	Me
CH_2CF_3	Me	1	S	Me	CH_2CF_3	Me	3	S	Me
$CH_2CH_2CH_2F$	Me	1	S	Me	$CH_2CH_2CH_2F$	Me	3	S	Me
$CH_2CH_2NMe_2$	Me	1	S	Me	$CH_2CH_2NMe_2$	Me	3	S	Me
$CH_2CH_2CF_3$	Me	1	S	Me	$CH_2CH_2CF_3$	Me	3	S	Me
N-Morpholino	Me	1	S	Me	*N*-Morpholino	Me	3	S	Me
CH_2CO_2Me	Me	1	S	Me	CH_2CO_2Me	Me	3	S	Me
c-Pr	Me	1	S	Me	*c*-Pr	Me	3	S	Me
c-Bu	Me	1	S	Me	*c*-Bu	Me	3	S	Me
c-Hex	Me	1	S	Me	*c*-Hex	Me	3	S	Me
Allyl	Me	1	S	Me	Allyl	Me	3	S	Me
Propargyl	Me	1	S	Me	Propargyl	Me	3	S	Me
CH_2-*c*-Pr	Me	1	S	Me	CH_2-*c*-Pr	Me	3	S	Me
CH_2CH_2NH-*c*-Pr	Me	1	S	Me	CH_2CH_2NH-*c*-Pr	Me	3	S	Me
$CH_2CH_2SO_2Me$	Me	1	S	Me	$CH_2CH_2SO_2Me$	Me	3	S	Me
CH_2CH_2SOMe	Me	1	S	Me	CH_2CH_2SOMe	Me	3	S	Me
SO_2Et	Me	1	S	Me	SO_2Et	Me	3	S	Me
2-Naphthyl	Me	1	S	Me	2-Naphthyl	Me	3	S	Me

Table 5

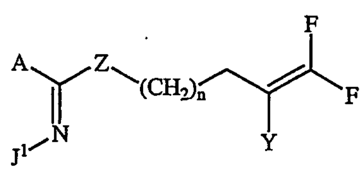


R^{1a}	J^1	n	X	R^{1a}	J^1	n	X
Me	CN	1	S	Me	Ph	1	S
Et	CN	1	S	Et	Ph	1	S
i-Pr	CN	1	S	*i*-Pr	Ph	1	S
n-Bu	CN	1	S	*n*-Bu	Ph	1	S
s-Bu	CN	1	S	*s*-Bu	Ph	1	S
t-Bu	CN	1	S	*t*-Bu	Ph	1	S
t-BuCH$_2$	CN	1	S	*t*-BuCH$_2$	Ph	1	S
PhCH$_2$	CN	1	S	PhCH$_2$	Ph	1	S
4-Cl-Ph	CN	1	S	4-Cl-Ph	Ph	1	S
4-F-PhCH$_2$	CN	1	S	4-F-PhCH$_2$	Ph	1	S
2-Pyridyl	CN	1	S	2-Pyridyl	Ph	1	S
3-Pyridyl	CN	1	S	3-Pyridyl	Ph	1	S
4-Pyridyl	CN	1	S	4-Pyridyl	Ph	1	S
3-Pyridyl-CH$_2$	CN	1	S	3-Pyridyl-CH$_2$	Ph	1	S
6-Cl-3-Pyridyl-CH$_2$	CN	1	S	6-Cl-3-Pyridyl-CH$_2$	Ph	1	S
Ph	CN	1	S	Ph	Ph	1	S
2-Cl-Ph	CN	1	S	2-Cl-Ph	Ph	1	S
2-F-Ph	CN	1	S	2-F-Ph	Ph	1	S
3-Cl-Ph	CN	1	S	3-Cl-Ph	Ph	1	S
3-F-Ph	CN	1	S	3-F-Ph	Ph	1	S
4-Cl-Ph	CN	1	S	4-Cl-Ph	Ph	1	S
4-F-Ph	CN	1	S	4-F-Ph	Ph	1	S
2-OMe-Ph	CN	1	S	2-OMe-Ph	Ph	1	S
3-OMe -Ph	CN	1	S	3-OMe -Ph	Ph	1	S
4-OMe-Ph	CN	1	S	4-OMe-Ph	Ph	1	S
2,6-di-F-Ph	CN	1	S	2,6-di-F-Ph	Ph	1	S
2,4-di-F-Ph	CN	1	S	2,4-di-F-Ph	Ph	1	S
CH$_2$CN	CN	1	S	CH$_2$CN	Ph	1	S
CH$_2$CO$_2$Et	CN	1	S	CH$_2$CO$_2$Et	Ph	1	S
CH$_2$CH$_2$OMe	CN	1	S	CH$_2$CH$_2$OMe	Ph	1	S
CH$_2$CH$_2$SMe	CN	1	S	CH$_2$CH$_2$SMe	Ph	1	S
CH$_2$CH$_2$Cl	CN	1	S	CH$_2$CH$_2$Cl	Ph	1	S

R^{1a}	J^1	n	X	R^{1a}	J^1	n	X
CH_2CF_3	CN	1	S	CH_2CF_3	Ph	1	S
$CH_2CH_2CH_2F$	CN	1	S	$CH_2CH_2CH_2F$	Ph	1	S
$CH_2CH_2NMe_2$	CN	1	S	$CH_2CH_2NMe_2$	Ph	1	S
$CH_2CH_2CF_3$	CN	1	S	$CH_2CH_2CF_3$	Ph	1	S
CH_2CO_2Me	CN	1	S	CH_2CO_2Me	Ph	1	S
c-Pr	CN	1	S	*c*-Pr	Ph	1	S
c-Bu	CN	1	S	*c*-Bu	Ph	1	S
c-Hex	CN	1	S	*c*-Hex	Ph	1	S
Allyl	CN	1	S	Allyl	Ph	1	S
Propargyl	CN	1	S	Propargyl	Ph	1	S
CH_2-*c*-Pr	CN	1	S	CH_2-*c*-Pr	Ph	1	S
CH_2CH_2NH-*c*-Pr	CN	1	S	CH_2CH_2NH-*c*-Pr	Ph	1	S
$CH_2CH_2SO_2Me$	CN	1	S	$CH_2CH_2SO_2Me$	Ph	1	S
CH_2CH_2SOMe	CN	1	S	CH_2CH_2SOMe	Ph	1	S
2-Naphthyl	CN	1	S	2-Naphthyl	Ph	1	S
Me	CN	1	O	Me	Ph	1	O
Et	CN	1	O	Et	Ph	1	O
i-Pr	CN	1	O	*i*-Pr	Ph	1	O
n-Bu	CN	1	O	*n*-Bu	Ph	1	O
s-Bu	CN	1	O	*s*-Bu	Ph	1	O
t-Bu	CN	1	O	*t*-Bu	Ph	1	O
t-$BuCH_2$	CN	1	O	*t*-$BuCH_2$	Ph	1	O
$PhCH_2$	CN	1	O	$PhCH_2$	Ph	1	O
4-Cl-Ph	CN	1	O	4-Cl-Ph	Ph	1	O
4-F-$PhCH_2$	CN	1	O	4-F-$PhCH_2$	Ph	1	O
2-Pyridyl	CN	1	O	2-Pyridyl	Ph	1	O
3-Pyridyl	CN	1	O	3-Pyridyl	Ph	1	O
4-Pyridyl	CN	1	O	4-Pyridyl	Ph	1	O
3-Pyridyl-CH_2	CN	1	O	3-Pyridyl-CH_2	Ph	1	O
6-Cl-3-Pyridyl-CH_2	CN	1	O	6-Cl-3-Pyridyl-CH_2	Ph	1	O
Ph	CN	1	O	Ph	Ph	1	O
2-Cl-Ph	CN	1	O	2-Cl-Ph	Ph	1	O
2-F-Ph	CN	1	O	2-F-Ph	Ph	1	O
3-Cl-Ph	CN	1	O	3-Cl-Ph	Ph	1	O
3-F-Ph	CN	1	O	3-F-Ph	Ph	1	O
4-Cl-Ph	CN	1	O	4-Cl-Ph	Ph	1	O
4-F-Ph	CN	1	O	4-F-Ph	Ph	1	O

R^{1a}	J^1	n	X	R^{1a}	J^1	n	X
2-OMe-Ph	CN	1	O	2-OMe-Ph	Ph	1	O
3-OMe -Ph	CN	1	O	3-OMe -Ph	Ph	1	O
4-OMe-Ph	CN	1	O	4-OMe-Ph	Ph	1	O
2,6-di-F-Ph	CN	1	O	2,6-di-F-Ph	Ph	1	O
2,4-di-F-Ph	CN	1	O	2,4-di-F-Ph	Ph	1	O
CH_2CN	CN	1	O	CH_2CN	Ph	1	O
CH_2CO_2Et	CN	1	O	CH_2CO_2Et	Ph	1	O
CH_2CH_2OMe	CN	1	O	CH_2CH_2OMe	Ph	1	O
CH_2CH_2SMe	CN	1	O	CH_2CH_2SMe	Ph	1	O
CH_2CH_2Cl	CN	1	O	CH_2CH_2Cl	Ph	1	O
CH_2CF_3	CN	1	O	CH_2CF_3	Ph	1	O
$CH_2CH_2CH_2F$	CN	1	O	$CH_2CH_2CH_2F$	Ph	1	O
$CH_2CH_2NMe_2$	CN	1	O	$CH_2CH_2NMe_2$	Ph	1	O
$CH_2CH_2CF_3$	CN	1	O	$CH_2CH_2CF_3$	Ph	1	O
CH_2CO_2Me	CN	1	O	CH_2CO_2Me	Ph	1	O
c-Pr	CN	1	O	*c*-Pr	Ph	1	O
c-Bu	CN	1	O	*c*-Bu	Ph	1	O
c-Hex	CN	1	O	*c*-Hex	Ph	1	O
Allyl	CN	1	O	Allyl	Ph	1	O
Propargyl	CN	1	O	Propargyl	Ph	1	O
CH_2-*c*-Pr	CN	1	O	CH_2-*c*-Pr	Ph	1	O
CH_2CH_2NH-*c*-Pr	CN	1	O	CH_2CH_2NH-*c*-Pr	Ph	1	O
$CH_2CH_2SO_2Me$	CN	1	O	$CH_2CH_2SO_2Me$	Ph	1	O
CH_2CH_2SOMe	CN	1	O	CH_2CH_2SOMe	Ph	1	O
2-Naphthyl	CN	1	O	2-Naphthyl	Ph	1	O
Me	CN	5	S	Me	CN	5	O
Me	Ph	5	S				

Table 6



J^1	A	Z	n	Y	J^1	A	Z	n	Y
CO_2Me	SMe	S	1	H	CO_2Me	SMe	S	1	F
CO_2Me	SEt	S	1	H	CO_2Me	SEt	S	1	F
CO_2Me	S-*n*-Pr	S	1	H	CO_2Me	S-*n*-Pr	S	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
CO_2Me	S-*i*-Pr	S	1	H	CO_2Me	S-*i*-Pr	S	1	F
CO_2Me	OMe	S	1	H	CO_2Me	OMe	S	1	F
CO_2Me	OEt	S	1	H	CO_2Me	OEt	S	1	F
CO_2Me	O-*n*-Pr	S	1	H	CO_2Me	O-*n*-Pr	S	1	F
CO_2Me	O-*i*-Pr	S	1	H	CO_2Me	O-*i*-Pr	S	1	F
CO_2Me	NHMe	S	1	H	CO_2Me	NHMe	S	1	F
CO_2Me	NHEt	S	1	H	CO_2Me	NHEt	S	1	F
CO_2Me	$N(Me)_2$	S	1	H	CO_2Me	$N(Me)_2$	S	1	F
CO_2Me	$N(Et)_2$	S	1	H	CO_2Me	$N(Et)_2$	S	1	F
CO_2Me	NMe(Et)	S	1	H	CO_2Me	NMe(Et)	S	1	F
CO_2Me	SMe	S	3	H	CO_2Me	SMe	S	3	F
CO_2Me	SEt	S	3	H	CO_2Me	SEt	S	3	F
CO_2Me	S-*n*-Pr	S	3	H	CO_2Me	S-*n*-Pr	S	3	F
CO_2Me	S-*i*-Pr	S	3	H	CO_2Me	S-*i*-Pr	S	3	F
CO_2Me	OMe	S	3	H	CO_2Me	OMe	S	3	F
CO_2Me	OEt	S	3	H	CO_2Me	OEt	S	3	F
CO_2Me	O-*n*-Pr	S	3	H	CO_2Me	O-*n*-Pr	S	3	F
CO_2Me	O-*i*-Pr	S	3	H	CO_2Me	O-*i*-Pr	S	3	F
CO_2Me	NHMe	S	3	H	CO_2Me	NHMe	S	3	F
CO_2Me	NHEt	S	3	H	CO_2Me	NHEt	S	3	F
CO_2Me	$N(Me)_2$	S	3	H	CO_2Me	$N(Me)_2$	S	3	F
CO_2Me	$N(Et)_2$	S	3	H	CO_2Me	$N(Et)_2$	S	3	F
CO_2Me	NMe(Et)	S	3	H	CO_2Me	NMe(Et)	S	3	F
CO_2Me	SMe	O	1	H	CO_2Me	SMe	O	1	F
CO_2Me	SEt	O	1	H	CO_2Me	SEt	O	1	F
CO_2Me	S-*n*-Pr	O	1	H	CO_2Me	S-*n*-Pr	O	1	F
CO_2Me	S-*i*-Pr	O	1	H	CO_2Me	S-*i*-Pr	O	1	F
CO_2Me	OMe	O	1	H	CO_2Me	OMe	O	1	F
CO_2Me	OEt	O	1	H	CO_2Me	OEt	O	1	F
CO_2Me	O-*n*-Pr	O	1	H	CO_2Me	O-*n*-Pr	O	1	F
CO_2Me	O-*i*-Pr	O	1	H	CO_2Me	O-*i*-Pr	O	1	F
CO_2Me	NHMe	O	1	H	CO_2Me	NHMe	O	1	F
CO_2Me	NHEt	O	1	H	CO_2Me	NHEt	O	1	F
CO_2Me	$N(Me)_2$	O	1	H	CO_2Me	$N(Me)_2$	O	1	F
CO_2Me	$N(Et)_2$	O	1	H	CO_2Me	$N(Et)_2$	O	1	F
CO_2Me	NMe(Et)	O	1	H	CO_2Me	NMe(Et)	O	1	F
CO_2Me	SMe	O	3	H	CO_2Me	SMe	O	3	F

J^1	A	Z	n	Y
CO_2Me	SEt	O	3	H
CO_2Me	S-*n*-Pr	O	3	H
CO_2Me	S-*i*-Pr	O	3	H
CO_2Me	OMe	O	3	H
CO_2Me	OEt	O	3	H
CO_2Me	O-*n*-Pr	O	3	H
CO_2Me	O-*i*-Pr	O	3	H
CO_2Me	NHMe	O	3	H
CO_2Me	NHEt	O	3	H
CO_2Me	$N(Me)_2$	O	3	H
CO_2Me	$N(Et)_2$	O	3	H
CO_2Me	NMe(Et)	O	3	H
CO_2Me	SMe	NH	1	H
CO_2Me	SEt	NH	1	H
CO_2Me	S-*n*-Pr	NH	1	H
CO_2Me	S-*i*-Pr	NH	1	H
CO_2Me	OMe	NH	1	H
CO_2Me	OEt	NH	1	H
CO_2Me	O-*n*-Pr	NH	1	H
CO_2Me	O-*i*-Pr	NH	1	H
CO_2Me	NHMe	NH	1	H
CO_2Me	NHEt	NH	1	H
CO_2Me	$N(Me)_2$	NH	1	H
CO_2Me	$N(Et)_2$	NH	1	H
CO_2Me	NMe(Et)	NH	1	H
CO_2Me	SMe	NH	3	H
CO_2Me	SEt	NH	3	H
CO_2Me	S-*n*-Pr	NH	3	H
CO_2Me	S-*i*-Pr	NH	3	H
CO_2Me	OMe	NH	3	H
CO_2Me	OEt	NH	3	H
CO_2Me	O-*n*-Pr	NH	3	H
CO_2Me	O-*i*-Pr	NH	3	H
CO_2Me	NHMe	NH	3	H
CO_2Me	NHEt	NH	3	H
CO_2Me	$N(Me)_2$	NH	3	H
CO_2Me	$N(Et)_2$	NH	3	H

J^1	A	Z	n	Y
CO_2Me	SEt	O	3	F
CO_2Me	S-*n*-Pr	O	3	F
CO_2Me	S-*i*-Pr	O	3	F
CO_2Me	OMe	O	3	F
CO_2Me	OEt	O	3	F
CO_2Me	O-*n*-Pr	O	3	F
CO_2Me	O-*i*-Pr	O	3	F
CO_2Me	NHMe	O	3	F
CO_2Me	NHEt	O	3	F
CO_2Me	$N(Me)_2$	O	3	F
CO_2Me	$N(Et)_2$	O	3	F
CO_2Me	NMe(Et)	O	3	F
CO_2Me	SMe	NH	1	F
CO_2Me	SEt	NH	1	F
CO_2Me	S-*n*-Pr	NH	1	F
CO_2Me	S-*i*-Pr	NH	1	F
CO_2Me	OMe	NH	1	F
CO_2Me	OEt	NH	1	F
CO_2Me	O-*n*-Pr	NH	1	F
CO_2Me	O-*i*-Pr	NH	1	F
CO_2Me	NHMe	NH	1	F
CO_2Me	NHEt	NH	1	F
CO_2Me	$N(Me)_2$	NH	1	F
CO_2Me	$N(Et)_2$	NH	1	F
CO_2Me	NMe(Et)	NH	1	F
CO_2Me	SMe	NH	3	F
CO_2Me	SEt	NH	3	F
CO_2Me	S-*n*-Pr	NH	3	F
CO_2Me	S-*i*-Pr	NH	3	F
CO_2Me	OMe	NH	3	F
CO_2Me	OEt	NH	3	F
CO_2Me	O-*n*-Pr	NH	3	F
CO_2Me	O-*i*-Pr	NH	3	F
CO_2Me	NHMe	NH	3	F
CO_2Me	NHEt	NH	3	F
CO_2Me	$N(Me)_2$	NH	3	F
CO_2Me	$N(Et)_2$	NH	3	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
CO_2Me	NMe(Et)	NH	3	H	CO_2Me	NMe(Et)	NH	3	F
CO_2Et	SMe	S	1	H	CO_2Et	SMe	S	1	F
CO_2Et	SEt	S	1	H	CO_2Et	SEt	S	1	F
CO_2Et	S-*n*-Pr	S	1	H	CO_2Et	S-*n*-Pr	S	1	F
CO_2Et	S-*i*-Pr	S	1	H	CO_2Et	S-*i*-Pr	S	1	F
CO_2Et	OMe	S	1	H	CO_2Et	OMe	S	1	F
CO_2Et	OEt	S	1	H	CO_2Et	OEt	S	1	F
CO_2Et	O-*n*-Pr	S	1	H	CO_2Et	O-*n*-Pr	S	1	F
CO_2Et	O-*i*-Pr	S	1	H	CO_2Et	O-*i*-Pr	S	1	F
CO_2Et	NHMe	S	1	H	CO_2Et	NHMe	S	1	F
CO_2Et	NHEt	S	1	H	CO_2Et	NHEt	S	1	F
CO_2Et	$N(Me)_2$	S	1	H	CO_2Et	$N(Me)_2$	S	1	F
CO_2Et	$N(Et)_2$	S	1	H	CO_2Et	$N(Et)_2$	S	1	F
CO_2Et	NMe(Et)	S	1	H	CO_2Et	NMe(Et)	S	1	F
CO_2Et	SMe	S	3	H	CO_2Et	SMe	S	3	F
CO_2Et	SEt	S	3	H	CO_2Et	SEt	S	3	F
CO_2Et	S-*n*-Pr	S	3	H	CO_2Et	S-*n*-Pr	S	3	F
CO_2Et	S-*i*-Pr	S	3	H	CO_2Et	S-*i*-Pr	S	3	F
CO_2Et	OMe	S	3	H	CO_2Et	OMe	S	3	F
CO_2Et	OEt	S	3	H	CO_2Et	OEt	S	3	F
CO_2Et	O-*n*-Pr	S	3	H	CO_2Et	O-*n*-Pr	S	3	F
CO_2Et	O-*i*-Pr	S	3	H	CO_2Et	O-*i*-Pr	S	3	F
CO_2Et	NHMe	S	3	H	CO_2Et	NHMe	S	3	F
CO_2Et	NHEt	S	3	H	CO_2Et	NHEt	S	3	F
CO_2Et	$N(Me)_2$	S	3	H	CO_2Et	$N(Me)_2$	S	3	F
CO_2Et	$N(Et)_2$	S	3	H	CO_2Et	$N(Et)_2$	S	3	F
CO_2Et	NMe(Et)	S	3	H	CO_2Et	NMe(Et)	S	3	F
CO_2Et	SMe	O	1	H	CO_2Et	SMe	O	1	F
CO_2Et	SEt	O	1	H	CO_2Et	SEt	O	1	F
CO_2Et	S-*n*-Pr	O	1	H	CO_2Et	S-*n*-Pr	O	1	F
CO_2Et	S-*i*-Pr	O	1	H	CO_2Et	S-*i*-Pr	O	1	F
CO_2Et	OMe	O	1	H	CO_2Et	OMe	O	1	F
CO_2Et	OEt	O	1	H	CO_2Et	OEt	O	1	F
CO_2Et	O-*n*-Pr	O	1	H	CO_2Et	O-*n*-Pr	O	1	F
CO_2Et	O-*i*-Pr	O	1	H	CO_2Et	O-*i*-Pr	O	1	F
CO_2Et	NHMe	O	1	H	CO_2Et	NHMe	O	1	F
CO_2Et	NHEt	O	1	H	CO_2Et	NHEt	O	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
CO_2Et	$N(Me)_2$	O	1	H	CO_2Et	$N(Me)_2$	O	1	F
CO_2Et	$N(Et)_2$	O	1	H	CO_2Et	$N(Et)_2$	O	1	F
CO_2Et	NMe(Et)	O	1	H	CO_2Et	NMe(Et)	O	1	F
CO_2Et	SMe	O	3	H	CO_2Et	SMe	O	3	F
CO_2Et	SEt	O	3	H	CO_2Et	SEt	O	3	F
CO_2Et	S-*n*-Pr	O	3	H	CO_2Et	S-*n*-Pr	O	3	F
CO_2Et	S-*i*-Pr	O	3	H	CO_2Et	S-*i*-Pr	O	3	F
CO_2Et	OMe	O	3	H	CO_2Et	OMe	O	3	F
CO_2Et	OEt	O	3	H	CO_2Et	OEt	O	3	F
CO_2Et	O-*n*-Pr	O	3	H	CO_2Et	O-*n*-Pr	O	3	F
CO_2Et	O-*i*-Pr	O	3	H	CO_2Et	O-*i*-Pr	O	3	F
CO_2Et	NHMe	O	3	H	CO_2Et	NHMe	O	3	F
CO_2Et	NHEt	O	3	H	CO_2Et	NHEt	O	3	F
CO_2Et	$N(Me)_2$	O	3	H	CO_2Et	$N(Me)_2$	O	3	F
CO_2Et	$N(Et)_2$	O	3	H	CO_2Et	$N(Et)_2$	O	3	F
CO_2Et	NMe(Et)	O	3	H	CO_2Et	NMe(Et)	O	3	F
CO_2Et	SMe	NH	1	H	CO_2Et	SMe	NH	1	F
CO_2Et	SEt	NH	1	H	CO_2Et	SEt	NH	1	F
CO_2Et	S-*n*-Pr	NH	1	H	CO_2Et	S-*n*-Pr	NH	1	F
CO_2Et	S-*i*-Pr	NH	1	H	CO_2Et	S-*i*-Pr	NH	1	F
CO_2Et	OMe	NH	1	H	CO_2Et	OMe	NH	1	F
CO_2Et	OEt	NH	1	H	CO_2Et	OEt	NH	1	F
CO_2Et	O-*n*-Pr	NH	1	H	CO_2Et	O-*n*-Pr	NH	1	F
CO_2Et	O-*i*-Pr	NH	1	H	CO_2Et	O-*i*-Pr	NH	1	F
CO_2Et	NHMe	NH	1	H	CO_2Et	NHMe	NH	1	F
CO_2Et	NHEt	NH	1	H	CO_2Et	NHEt	NH	1	F
CO_2Et	$N(Me)_2$	NH	1	H	CO_2Et	$N(Me)_2$	NH	1	F
CO_2Et	$N(Et)_2$	NH	1	H	CO_2Et	$N(Et)_2$	NH	1	F
CO_2Et	NMe(Et)	NH	1	H	CO_2Et	NMe(Et)	NH	1	F
CO_2Et	SMe	NH	3	H	CO_2Et	SMe	NH	3	F
CO_2Et	SEt	NH	3	H	CO_2Et	SEt	NH	3	F
CO_2Et	S-*n*-Pr	NH	3	H	CO_2Et	S-*n*-Pr	NH	3	F
CO_2Et	S-*i*-Pr	NH	3	H	CO_2Et	S-*i*-Pr	NH	3	F
CO_2Et	OMe	NH	3	H	CO_2Et	OMe	NH	3	F
CO_2Et	OEt	NH	3	H	CO_2Et	OEt	NH	3	F
CO_2Et	O-*n*-Pr	NH	3	H	CO_2Et	O-*n*-Pr	NH	3	F
CO_2Et	O-*i*-Pr	NH	3	H	CO_2Et	O-*i*-Pr	NH	3	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
CO_2Et	NHMe	NH	3	H	CO_2Et	NHMe	NH	3	F
CO_2Et	NHEt	NH	3	H	CO_2Et	NHEt	NH	3	F
CO_2Et	$N(Me)_2$	NH	3	H	CO_2Et	$N(Me)_2$	NH	3	F
CO_2Et	$N(Et)_2$	NH	3	H	CO_2Et	$N(Et)_2$	NH	3	F
CO_2Et	NMe(Et)	NH	3	H	CO_2Et	NMe(Et)	NH	3	F
C(O)Me	SMe	S	1	H	C(O)Me	SMe	S	1	F
C(O)Me	SEt	S	1	H	C(O)Me	SEt	S	1	F
C(O)Me	S-*n*-Pr	S	1	H	C(O)Me	S-*n*-Pr	S	1	F
C(O)Me	S-*i*-Pr	S	1	H	C(O)Me	S-*i*-Pr	S	1	F
C(O)Me	OMe	S	1	H	C(O)Me	OMe	S	1	F
C(O)Me	OEt	S	1	H	C(O)Me	OEt	S	1	F
C(O)Me	O-*n*-Pr	S	1	H	C(O)Me	O-*n*-Pr	S	1	F
C(O)Me	O-*i*-Pr	S	1	H	C(O)Me	O-*i*-Pr	S	1	F
C(O)Me	NHMe	S	1	H	C(O)Me	NHMe	S	1	F
C(O)Me	NHEt	S	1	H	C(O)Me	NHEt	S	1	F
C(O)Me	$N(Me)_2$	S	1	H	C(O)Me	$N(Me)_2$	S	1	F
C(O)Me	$N(Et)_2$	S	1	H	C(O)Me	$N(Et)_2$	S	1	F
C(O)Me	NMe(Et)	S	1	H	C(O)Me	NMe(Et)	S	1	F
C(O)Me	SMe	S	3	H	C(O)Me	SMe	S	3	F
C(O)Me	SEt	S	3	H	C(O)Me	SEt	S	3	F
C(O)Me	S-*n*-Pr	S	3	H	C(O)Me	S-*n*-Pr	S	3	F
C(O)Me	S-*i*-Pr	S	3	H	C(O)Me	S-*i*-Pr	S	3	F
C(O)Me	OMe	S	3	H	C(O)Me	OMe	S	3	F
C(O)Me	OEt	S	3	H	C(O)Me	OEt	S	3	F
C(O)Me	O-*n*-Pr	S	3	H	C(O)Me	O-*n*-Pr	S	3	F
C(O)Me	O-*i*-Pr	S	3	H	C(O)Me	O-*i*-Pr	S	3	F
C(O)Me	NHMe	S	3	H	C(O)Me	NHMe	S	3	F
C(O)Me	NHEt	S	3	H	C(O)Me	NHEt	S	3	F
C(O)Me	$N(Me)_2$	S	3	H	C(O)Me	$N(Me)_2$	S	3	F
C(O)Me	$N(Et)_2$	S	3	H	C(O)Me	$N(Et)_2$	S	3	F
C(O)Me	NMe(Et)	S	3	H	C(O)Me	NMe(Et)	S	3	F
C(O)Me	SMe	O	1	H	C(O)Me	SMe	O	1	F
C(O)Me	SEt	O	1	H	C(O)Me	SEt	O	1	F
C(O)Me	S-*n*-Pr	O	1	H	C(O)Me	S-*n*-Pr	O	1	F
C(O)Me	S-*i*-Pr	O	1	H	C(O)Me	S-*i*-Pr	O	1	F
C(O)Me	OMe	O	1	H	C(O)Me	OMe	O	1	F
C(O)Me	OEt	O	1	H	C(O)Me	OEt	O	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
C(O)Me	O-*n*-Pr	O	1	H	C(O)Me	O-*n*-Pr	O	1	F
C(O)Me	O-*i*-Pr	O	1	H	C(O)Me	O-*i*-Pr	O	1	F
C(O)Me	NHMe	O	1	H	C(O)Me	NHMe	O	1	F
C(O)Me	NHEt	O	1	H	C(O)Me	NHEt	O	1	F
C(O)Me	$N(Me)_2$	O	1	H	C(O)Me	$N(Me)_2$	O	1	F
C(O)Me	$N(Et)_2$	O	1	H	C(O)Me	$N(Et)_2$	O	1	F
C(O)Me	NMe(Et)	O	1	H	C(O)Me	NMe(Et)	O	1	F
C(O)Me	SMe	O	3	H	C(O)Me	SMe	O	3	F
C(O)Me	SEt	O	3	H	C(O)Me	SEt	O	3	F
C(O)Me	S-*n*-Pr	O	3	H	C(O)Me	S-*n*-Pr	O	3	F
C(O)Me	S-*i*-Pr	O	3	H	C(O)Me	S-*i*-Pr	O	3	F
C(O)Me	OMe	O	3	H	C(O)Me	OMe	O	3	F
C(O)Me	OEt	O	3	H	C(O)Me	OEt	O	3	F
C(O)Me	O-*n*-Pr	O	3	H	C(O)Me	O-*n*-Pr	O	3	F
C(O)Me	O-*i*-Pr	O	3	H	C(O)Me	O-*i*-Pr	O	3	F
C(O)Me	NHMe	O	3	H	C(O)Me	NHMe	O	3	F
C(O)Me	NHEt	O	3	H	C(O)Me	NHEt	O	3	F
C(O)Me	$N(Me)_2$	O	3	H	C(O)Me	$N(Me)_2$	O	3	F
C(O)Me	$N(Et)_2$	O	3	H	C(O)Me	$N(Et)_2$	O	3	F
C(O)Me	NMe(Et)	O	3	H	C(O)Me	NMe(Et)	O	3	F
C(O)Me	SMe	NH	1	H	C(O)Me	SMe	NH	1	F
C(O)Me	SEt	NH	1	H	C(O)Me	SEt	NH	1	F
C(O)Me	S-*n*-Pr	NH	1	H	C(O)Me	S-*n*-Pr	NH	1	F
C(O)Me	S-*i*-Pr	NH	1	H	C(O)Me	S-*i*-Pr	NH	1	F
C(O)Me	OMe	NH	1	H	C(O)Me	OMe	NH	1	F
C(O)Me	OEt	NH	1	H	C(O)Me	OEt	NH	1	F
C(O)Me	O-*n*-Pr	NH	1	H	C(O)Me	O-*n*-Pr	NH	1	F
C(O)Me	O-*i*-Pr	NH	1	H	C(O)Me	O-*i*-Pr	NH	1	F
C(O)Me	NHMe	NH	1	H	C(O)Me	NHMe	NH	1	F
C(O)Me	NHEt	NH	1	H	C(O)Me	NHEt	NH	1	F
C(O)Me	$N(Me)_2$	NH	1	H	C(O)Me	$N(Me)_2$	NH	1	F
C(O)Me	$N(Et)_2$	NH	1	H	C(O)Me	$N(Et)_2$	NH	1	F
C(O)Me	NMe(Et)	NH	1	H	C(O)Me	NMe(Et)	NH	1	F
C(O)Me	SMe	NH	3	H	C(O)Me	SMe	NH	3	F
C(O)Me	SEt	NH	3	H	C(O)Me	SEt	NH	3	F
C(O)Me	S-*n*-Pr	NH	3	H	C(O)Me	S-*n*-Pr	NH	3	F
C(O)Me	S-*i*-Pr	NH	3	H	C(O)Me	S-*i*-Pr	NH	3	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
C(O)Me	OMe	NH	3	H	C(O)Me	OMe	NH	3	F
C(O)Me	OEt	NH	3	H	C(O)Me	OEt	NH	3	F
C(O)Me	O-*n*-Pr	NH	3	H	C(O)Me	O-*n*-Pr	NH	3	F
C(O)Me	O-*i*-Pr	NH	3	H	C(O)Me	O-*i*-Pr	NH	3	F
C(O)Me	NHMe	NH	3	H	C(O)Me	NHMe	NH	3	F
C(O)Me	NHEt	NH	3	H	C(O)Me	NHEt	NH	3	F
C(O)Me	$N(Me)_2$	NH	3	H	C(O)Me	$N(Me)_2$	NH	3	F
C(O)Me	$N(Et)_2$	NH	3	H	C(O)Me	$N(Et)_2$	NH	3	F
C(O)Me	NMe(Et)	NH	3	H	C(O)Me	NMe(Et)	NH	3	F
C(O)Et	SMe	S	1	H	C(O)Et	SMe	S	1	F
C(O)Et	SEt	S	1	H	C(O)Et	SEt	S	1	F
C(O)Et	S-*n*-Pr	S	1	H	C(O)Et	S-*n*-Pr	S	1	F
C(O)Et	S-*i*-Pr	S	1	H	C(O)Et	S-*i*-Pr	S	1	F
C(O)Et	OMe	S	1	H	C(O)Et	OMe	S	1	F
C(O)Et	OEt	S	1	H	C(O)Et	OEt	S	1	F
C(O)Et	O-*n*-Pr	S	1	H	C(O)Et	O-*n*-Pr	S	1	F
C(O)Et	O-*i*-Pr	S	1	H	C(O)Et	O-*i*-Pr	S	1	F
C(O)Et	NHMe	S	1	H	C(O)Et	NHMe	S	1	F
C(O)Et	NHEt	S	1	H	C(O)Et	NHEt	S	1	F
C(O)Et	$N(Me)_2$	S	1	H	C(O)Et	$N(Me)_2$	S	1	F
C(O)Et	$N(Et)_2$	S	1	H	C(O)Et	$N(Et)_2$	S	1	F
C(O)Et	NMe(Et)	S	1	H	C(O)Et	NMe(Et)	S	1	F
C(O)Et	SMe	S	3	H	C(O)Et	SMe	S	3	F
C(O)Et	SEt	S	3	H	C(O)Et	SEt	S	3	F
C(O)Et	S-*n*-Pr	S	3	H	C(O)Et	S-*n*-Pr	S	3	F
C(O)Et	S-*i*-Pr	S	3	H	C(O)Et	S-*i*-Pr	S	3	F
C(O)Et	OMe	S	3	H	C(O)Et	OMe	S	3	F
C(O)Et	OEt	S	3	H	C(O)Et	OEt	S	3	F
C(O)Et	O-*n*-Pr	S	3	H	C(O)Et	O-*n*-Pr	S	3	F
C(O)Et	O-*i*-Pr	S	3	H	C(O)Et	O-*i*-Pr	S	3	F
C(O)Et	NHMe	S	3	H	C(O)Et	NHMe	S	3	F
C(O)Et	NHEt	S	3	H	C(O)Et	NHEt	S	3	F
C(O)Et	$N(Me)_2$	S	3	H	C(O)Et	$N(Me)_2$	S	3	F
C(O)Et	$N(Et)_2$	S	3	H	C(O)Et	$N(Et)_2$	S	3	F
C(O)Et	NMe(Et)	S	3	H	C(O)Et	NMe(Et)	S	3	F
C(O)Et	SMe	O	1	H	C(O)Et	SMe	O	1	F
C(O)Et	SEt	O	1	H	C(O)Et	SEt	O	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
C(O)Et	S-*n*-Pr	O	1	H	C(O)Et	S-*n*-Pr	O	1	F
C(O)Et	S-*i*-Pr	O	1	H	C(O)Et	S-*i*-Pr	O	1	F
C(O)Et	OMe	O	1	H	C(O)Et	OMe	O	1	F
C(O)Et	OEt	O	1	H	C(O)Et	OEt	O	1	F
C(O)Et	O-*n*-Pr	O	1	H	C(O)Et	O-*n*-Pr	O	1	F
C(O)Et	O-*i*-Pr	O	1	H	C(O)Et	O-*i*-Pr	O	1	F
C(O)Et	NHMe	O	1	H	C(O)Et	NHMe	O	1	F
C(O)Et	NHEt	O	1	H	C(O)Et	NHEt	O	1	F
C(O)Et	$N(Me)_2$	O	1	H	C(O)Et	$N(Me)_2$	O	1	F
C(O)Et	$N(Et)_2$	O	1	H	C(O)Et	$N(Et)_2$	O	1	F
C(O)Et	NMe(Et)	O	1	H	C(O)Et	NMe(Et)	O	1	F
C(O)Et	SMe	O	3	H	C(O)Et	SMe	O	3	F
C(O)Et	SEt	O	3	H	C(O)Et	SEt	O	3	F
C(O)Et	S-*n*-Pr	O	3	H	C(O)Et	S-*n*-Pr	O	3	F
C(O)Et	S-*i*-Pr	O	3	H	C(O)Et	S-*i*-Pr	O	3	F
C(O)Et	OMe	O	3	H	C(O)Et	OMe	O	3	F
C(O)Et	OEt	O	3	H	C(O)Et	OEt	O	3	F
C(O)Et	O-*n*-Pr	O	3	H	C(O)Et	O-*n*-Pr	O	3	F
C(O)Et	O-*i*-Pr	O	3	H	C(O)Et	O-*i*-Pr	O	3	F
C(O)Et	NHMe	O	3	H	C(O)Et	NHMe	O	3	F
C(O)Et	NHEt	O	3	H	C(O)Et	NHEt	O	3	F
C(O)Et	$N(Me)_2$	O	3	H	C(O)Et	$N(Me)_2$	O	3	F
C(O)Et	$N(Et)_2$	O	3	H	C(O)Et	$N(Et)_2$	O	3	F
C(O)Et	NMe(Et)	O	3	H	C(O)Et	NMe(Et)	O	3	F
C(O)Et	SMe	NH	1	H	C(O)Et	SMe	NH	1	F
C(O)Et	SEt	NH	1	H	C(O)Et	SEt	NH	1	F
C(O)Et	S-*n*-Pr	NH	1	H	C(O)Et	S-*n*-Pr	NH	1	F
C(O)Et	S-*i*-Pr	NH	1	H	C(O)Et	S-*i*-Pr	NH	1	F
C(O)Et	OMe	NH	1	H	C(O)Et	OMe	NH	1	F
C(O)Et	OEt	NH	1	H	C(O)Et	OEt	NH	1	F
C(O)Et	O-*n*-Pr	NH	1	H	C(O)Et	O-*n*-Pr	NH	1	F
C(O)Et	O-*i*-Pr	NH	1	H	C(O)Et	O-*i*-Pr	NH	1	F
C(O)Et	NHMe	NH	1	H	C(O)Et	NHMe	NH	1	F
C(O)Et	NHEt	NH	1	H	C(O)Et	NHEt	NH	1	F
C(O)Et	$N(Me)_2$	NH	1	H	C(O)Et	$N(Me)_2$	NH	1	F
C(O)Et	$N(Et)_2$	NH	1	H	C(O)Et	$N(Et)_2$	NH	1	F
C(O)Et	NMe(Et)	NH	1	H	C(O)Et	NMe(Et)	NH	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
C(O)Et	SMe	NH	3	H	C(O)Et	SMe	NH	3	F
C(O)Et	SEt	NH	3	H	C(O)Et	SEt	NH	3	F
C(O)Et	S-*n*-Pr	NH	3	H	C(O)Et	S-*n*-Pr	NH	3	F
C(O)Et	S-*i*-Pr	NH	3	H	C(O)Et	S-*i*-Pr	NH	3	F
C(O)Et	OMe	NH	3	H	C(O)Et	OMe	NH	3	F
C(O)Et	OEt	NH	3	H	C(O)Et	OEt	NH	3	F
C(O)Et	O-*n*-Pr	NH	3	H	C(O)Et	O-*n*-Pr	NH	3	F
C(O)Et	O-*i*-Pr	NH	3	H	C(O)Et	O-*i*-Pr	NH	3	F
C(O)Et	NHMe	NH	3	H	C(O)Et	NHMe	NH	3	F
C(O)Et	NHEt	NH	3	H	C(O)Et	NHEt	NH	3	F
C(O)Et	$N(Me)_2$	NH	3	H	C(O)Et	$N(Me)_2$	NH	3	F
C(O)Et	$N(Et)_2$	NH	3	H	C(O)Et	$N(Et)_2$	NH	3	F
C(O)Et	NMe(Et)	NH	3	H	C(O)Et	NMe(Et)	NH	3	F
SO_2Me	SMe	S	1	H	SO_2Me	SMe	S	1	F
SO_2Me	SEt	S	1	H	SO_2Me	SEt	S	1	F
SO_2Me	S-*n*-Pr	S	1	H	SO_2Me	S-*n*-Pr	S	1	F
SO_2Me	S-*i*-Pr	S	1	H	SO_2Me	S-*i*-Pr	S	1	F
SO_2Me	OMe	S	1	H	SO_2Me	OMe	S	1	F
SO_2Me	OEt	S	1	H	SO_2Me	OEt	S	1	F
SO_2Me	O-*n*-Pr	S	1	H	SO_2Me	O-*n*-Pr	S	1	F
SO_2Me	O-*i*-Pr	S	1	H	SO_2Me	O-*i*-Pr	S	1	F
SO_2Me	NHMe	S	1	H	SO_2Me	NHMe	S	1	F
SO_2Me	NHEt	S	1	H	SO_2Me	NHEt	S	1	F
SO_2Me	$N(Me)_2$	S	1	H	SO_2Me	$N(Me)_2$	S	1	F
SO_2Me	$N(Et)_2$	S	1	H	SO_2Me	$N(Et)_2$	S	1	F
SO_2Me	NMe(Et)	S	1	H	SO_2Me	NMe(Et)	S	1	F
SO_2Me	SMe	S	3	H	SO_2Me	SMe	S	3	F
SO_2Me	SEt	S	3	H	SO_2Me	SEt	S	3	F
SO_2Me	S-*n*-Pr	S	3	H	SO_2Me	S-*n*-Pr	S	3	F
SO_2Me	S-*i*-Pr	S	3	H	SO_2Me	S-*i*-Pr	S	3	F
SO_2Me	OMe	S	3	H	SO_2Me	OMe	S	3	F
SO_2Me	OEt	S	3	H	SO_2Me	OEt	S	3	F
SO_2Me	O-*n*-Pr	S	3	H	SO_2Me	O-*n*-Pr	S	3	F
SO_2Me	O-*i*-Pr	S	3	H	SO_2Me	O-*i*-Pr	S	3	F
SO_2Me	NHMe	S	3	H	SO_2Me	NHMe	S	3	F
SO_2Me	NHEt	S	3	H	SO_2Me	NHEt	S	3	F
SO_2Me	$N(Me)_2$	S	3	H	SO_2Me	$N(Me)_2$	S	3	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
SO_2Me	$N(Et)_2$	S	3	H	SO_2Me	$N(Et)_2$	S	3	F
SO_2Me	NMe(Et)	S	3	H	SO_2Me	NMe(Et)	S	3	F
SO_2Me	SMe	O	1	H	SO_2Me	SMe	O	1	F
SO_2Me	SEt	O	1	H	SO_2Me	SEt	O	1	F
SO_2Me	S-*n*-Pr	O	1	H	SO_2Me	S-*n*-Pr	O	1	F
SO_2Me	S-*i*-Pr	O	1	H	SO_2Me	S-*i*-Pr	O	1	F
SO_2Me	OMe	O	1	H	SO_2Me	OMe	O	1	F
SO_2Me	OEt	O	1	H	SO_2Me	OEt	O	1	F
SO_2Me	O-*n*-Pr	O	1	H	SO_2Me	O-*n*-Pr	O	1	F
SO_2Me	O-*i*-Pr	O	1	H	SO_2Me	O-*i*-Pr	O	1	F
SO_2Me	NHMe	O	1	H	SO_2Me	NHMe	O	1	F
SO_2Me	NHEt	O	1	H	SO_2Me	NHEt	O	1	F
SO_2Me	$N(Me)_2$	O	1	H	SO_2Me	$N(Me)_2$	O	1	F
SO_2Me	$N(Et)_2$	O	1	H	SO_2Me	$N(Et)_2$	O	1	F
SO_2Me	NMe(Et)	O	1	H	SO_2Me	NMe(Et)	O	1	F
SO_2Me	SMe	O	3	H	SO_2Me	SMe	O	3	F
SO_2Me	SEt	O	3	H	SO_2Me	SEt	O	3	F
SO_2Me	S-*n*-Pr	O	3	H	SO_2Me	S-*n*-Pr	O	3	F
SO_2Me	S-*i*-Pr	O	3	H	SO_2Me	S-*i*-Pr	O	3	F
SO_2Me	OMe	O	3	H	SO_2Me	OMe	O	3	F
SO_2Me	OEt	O	3	H	SO_2Me	OEt	O	3	F
SO_2Me	O-*n*-Pr	O	3	H	SO_2Me	O-*n*-Pr	O	3	F
SO_2Me	O-*i*-Pr	O	3	H	SO_2Me	O-*i*-Pr	O	3	F
SO_2Me	NHMe	O	3	H	SO_2Me	NHMe	O	3	F
SO_2Me	NHEt	O	3	H	SO_2Me	NHEt	O	3	F
SO_2Me	$N(Me)_2$	O	3	H	SO_2Me	$N(Me)_2$	O	3	F
SO_2Me	$N(Et)_2$	O	3	H	SO_2Me	$N(Et)_2$	O	3	F
SO_2Me	NMe(Et)	O	3	H	SO_2Me	NMe(Et)	O	3	F
SO_2Me	SMe	NH	1	H	SO_2Me	SMe	NH	1	F
SO_2Me	SEt	NH	1	H	SO_2Me	SEt	NH	1	F
SO_2Me	S-*n*-Pr	NH	1	H	SO_2Me	S-*n*-Pr	NH	1	F
SO_2Me	S-*i*-Pr	NH	1	H	SO_2Me	S-*i*-Pr	NH	1	F
SO_2Me	OMe	NH	1	H	SO_2Me	OMe	NH	1	F
SO_2Me	OEt	NH	1	H	SO_2Me	OEt	NH	1	F
SO_2Me	O-*n*-Pr	NH	1	H	SO_2Me	O-*n*-Pr	NH	1	F
SO_2Me	O-*i*-Pr	NH	1	H	SO_2Me	O-*i*-Pr	NH	1	F
SO_2Me	NHMe	NH	1	H	SO_2Me	NHMe	NH	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
SO_2Me	NHEt	NH	1	H	SO_2Me	NHEt	NH	1	F
SO_2Me	$N(Me)_2$	NH	1	H	SO_2Me	$N(Me)_2$	NH	1	F
SO_2Me	$N(Et)_2$	NH	1	H	SO_2Me	$N(Et)_2$	NH	1	F
SO_2Me	NMe(Et)	NH	1	H	SO_2Me	NMe(Et)	NH	1	F
SO_2Me	SMe	NH	3	H	SO_2Me	SMe	NH	3	F
SO_2Me	SEt	NH	3	H	SO_2Me	SEt	NH	3	F
SO_2Me	S-*n*-Pr	NH	3	H	SO_2Me	S-*n*-Pr	NH	3	F
SO_2Me	S-*i*-Pr	NH	3	H	SO_2Me	S-*i*-Pr	NH	3	F
SO_2Me	OMe	NH	3	H	SO_2Me	OMe	NH	3	F
SO_2Me	OEt	NH	3	H	SO_2Me	OEt	NH	3	F
SO_2Me	O-*n*-Pr	NH	3	H	SO_2Me	O-*n*-Pr	NH	3	F
SO_2Me	O-*i*-Pr	NH	3	H	SO_2Me	O-*i*-Pr	NH	3	F
SO_2Me	NHMe	NH	3	H	SO_2Me	NHMe	NH	3	F
SO_2Me	NHEt	NH	3	H	SO_2Me	NHEt	NH	3	F
SO_2Me	$N(Me)_2$	NH	3	H	SO_2Me	$N(Me)_2$	NH	3	F
SO_2Me	$N(Et)_2$	NH	3	H	SO_2Me	$N(Et)_2$	NH	3	F
SO_2Me	NMe(Et)	NH	3	H	SO_2Me	NMe(Et)	NH	3	F
SO_2Et	SMe	S	1	H	SO_2Et	SMe	S	1	F
SO_2Et	SEt	S	1	H	SO_2Et	SEt	S	1	F
SO_2Et	S-*n*-Pr	S	1	H	SO_2Et	S-*n*-Pr	S	1	F
SO_2Et	S-*i*-Pr	S	1	H	SO_2Et	S-*i*-Pr	S	1	F
SO_2Et	OMe	S	1	H	SO_2Et	OMe	S	1	F
SO_2Et	OEt	S	1	H	SO_2Et	OEt	S	1	F
SO_2Et	O-*n*-Pr	S	1	H	SO_2Et	O-*n*-Pr	S	1	F
SO_2Et	O-*i*-Pr	S	1	H	SO_2Et	O-*i*-Pr	S	1	F
SO_2Et	NHMe	S	1	H	SO_2Et	NHMe	S	1	F
SO_2Et	NHEt	S	1	H	SO_2Et	NHEt	S	1	F
SO_2Et	$N(Me)_2$	S	1	H	SO_2Et	$N(Me)_2$	S	1	F
SO_2Et	$N(Et)_2$	S	1	H	SO_2Et	$N(Et)_2$	S	1	F
SO_2Et	NMe(Et)	S	1	H	SO_2Et	NMe(Et)	S	1	F
SO_2Et	SMe	S	3	H	SO_2Et	SMe	S	3	F
SO_2Et	SEt	S	3	H	SO_2Et	SEt	S	3	F
SO_2Et	S-*n*-Pr	S	3	H	SO_2Et	S-*n*-Pr	S	3	F
SO_2Et	S-*i*-Pr	S	3	H	SO_2Et	S-*i*-Pr	S	3	F
SO_2Et	OMe	S	3	H	SO_2Et	OMe	S	3	F
SO_2Et	OEt	S	3	H	SO_2Et	OEt	S	3	F
SO_2Et	O-*n*-Pr	S	3	H	SO_2Et	O-*n*-Pr	S	3	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
SO_2Et	O-*i*-Pr	S	3	H	SO_2Et	O-*i*-Pr	S	3	F
SO_2Et	NHMe	S	3	H	SO_2Et	NHMe	S	3	F
SO_2Et	NHEt	S	3	H	SO_2Et	NHEt	S	3	F
SO_2Et	$N(Me)_2$	S	3	H	SO_2Et	$N(Me)_2$	S	3	F
SO_2Et	$N(Et)_2$	S	3	H	SO_2Et	$N(Et)_2$	S	3	F
SO_2Et	NMe(Et)	S	3	H	SO_2Et	NMe(Et)	S	3	F
SO_2Et	SMe	O	1	H	SO_2Et	SMe	O	1	F
SO_2Et	SEt	O	1	H	SO_2Et	SEt	O	1	F
SO_2Et	S-*n*-Pr	O	1	H	SO_2Et	S-*n*-Pr	O	1	F
SO_2Et	S-*i*-Pr	O	1	H	SO_2Et	S-*i*-Pr	O	1	F
SO_2Et	OMe	O	1	H	SO_2Et	OMe	O	1	F
SO_2Et	OEt	O	1	H	SO_2Et	OEt	O	1	F
SO_2Et	O-*n*-Pr	O	1	H	SO_2Et	O-*n*-Pr	O	1	F
SO_2Et	O-*i*-Pr	O	1	H	SO_2Et	O-*i*-Pr	O	1	F
SO_2Et	NHMe	O	1	H	SO_2Et	NHMe	O	1	F
SO_2Et	NHEt	O	1	H	SO_2Et	NHEt	O	1	F
SO_2Et	$N(Me)_2$	O	1	H	SO_2Et	$N(Me)_2$	O	1	F
SO_2Et	$N(Et)_2$	O	1	H	SO_2Et	$N(Et)_2$	O	1	F
SO_2Et	NMe(Et)	O	1	H	SO_2Et	NMe(Et)	O	1	F
SO_2Et	SMe	O	3	H	SO_2Et	SMe	O	3	F
SO_2Et	SEt	O	3	H	SO_2Et	SEt	O	3	F
SO_2Et	S-*n*-Pr	O	3	H	SO_2Et	S-*n*-Pr	O	3	F
SO_2Et	S-*i*-Pr	O	3	H	SO_2Et	S-*i*-Pr	O	3	F
SO_2Et	OMe	O	3	H	SO_2Et	OMe	O	3	F
SO_2Et	OEt	O	3	H	SO_2Et	OEt	O	3	F
SO_2Et	O-*n*-Pr	O	3	H	SO_2Et	O-*n*-Pr	O	3	F
SO_2Et	O-*i*-Pr	O	3	H	SO_2Et	O-*i*-Pr	O	3	F
SO_2Et	NHMe	O	3	H	SO_2Et	NHMe	O	3	F
SO_2Et	NHEt	O	3	H	SO_2Et	NHEt	O	3	F
SO_2Et	$N(Me)_2$	O	3	H	SO_2Et	$N(Me)_2$	O	3	F
SO_2Et	$N(Et)_2$	O	3	H	SO_2Et	$N(Et)_2$	O	3	F
SO_2Et	NMe(Et)	O	3	H	SO_2Et	NMe(Et)	O	3	F
SO_2Et	SMe	NH	1	H	SO_2Et	SMe	NH	1	F
SO_2Et	SEt	NH	1	H	SO_2Et	SEt	NH	1	F
SO_2Et	S-*n*-Pr	NH	1	H	SO_2Et	S-*n*-Pr	NH	1	F
SO_2Et	S-*i*-Pr	NH	1	H	SO_2Et	S-*i*-Pr	NH	1	F
SO_2Et	OMe	NH	1	H	SO_2Et	OMe	NH	1	F

J^1	A	Z	n	Y
SO_2Et	OEt	NH	1	H
SO_2Et	O-*n*-Pr	NH	1	H
SO_2Et	O-*i*-Pr	NH	1	H
SO_2Et	NHMe	NH	1	H
SO_2Et	NHEt	NH	1	H
SO_2Et	$N(Me)_2$	NH	1	H
SO_2Et	$N(Et)_2$	NH	1	H
SO_2Et	NMe(Et)	NH	1	H
SO_2Et	SMe	NH	3	H
SO_2Et	SEt	NH	3	H
SO_2Et	S-*n*-Pr	NH	3	H
SO_2Et	S-*i*-Pr	NH	3	H
SO_2Et	OMe	NH	3	H
SO_2Et	OEt	NH	3	H
SO_2Et	O-*n*-Pr	NH	3	H
SO_2Et	O-*i*-Pr	NH	3	H
SO_2Et	NHMe	NH	3	H
SO_2Et	NHEt	NH	3	H
SO_2Et	$N(Me)_2$	NH	3	H
SO_2Et	$N(Et)_2$	NH	3	H
SO_2Et	NMe(Et)	NH	3	H
SO_2Ph	SMe	S	1	H
SO_2Ph	SEt	S	1	H
SO_2Ph	S-*n*-Pr	S	1	H
SO_2Ph	S-*i*-Pr	S	1	H
SO_2Ph	OMe	S	1	H
SO_2Ph	OEt	S	1	H
SO_2Ph	O-*n*-Pr	S	1	H
SO_2Ph	O-*i*-Pr	S	1	H
SO_2Ph	NHMe	S	1	H
SO_2Ph	NHEt	S	1	H
SO_2Ph	$N(Me)_2$	S	1	H
SO_2Ph	$N(Et)_2$	S	1	H
SO_2Ph	NMe(Et)	S	1	H
SO_2Ph	SMe	S	3	H
SO_2Ph	SEt	S	3	H
SO_2Ph	S-*n*-Pr	S	3	H

J^1	A	Z	n	Y
SO_2Et	OEt	NH	1	F
SO_2Et	O-*n*-Pr	NH	1	F
SO_2Et	O-*i*-Pr	NH	1	F
SO_2Et	NHMe	NH	1	F
SO_2Et	NHEt	NH	1	F
SO_2Et	$N(Me)_2$	NH	1	F
SO_2Et	$N(Et)_2$	NH	1	F
SO_2Et	NMe(Et)	NH	1	F
SO_2Et	SMe	NH	3	F
SO_2Et	SEt	NH	3	F
SO_2Et	S-*n*-Pr	NH	3	F
SO_2Et	S-*i*-Pr	NH	3	F
SO_2Et	OMe	NH	3	F
SO_2Et	OEt	NH	3	F
SO_2Et	O-*n*-Pr	NH	3	F
SO_2Et	O-*i*-Pr	NH	3	F
SO_2Et	NHMe	NH	3	F
SO_2Et	NHEt	NH	3	F
SO_2Et	$N(Me)_2$	NH	3	F
SO_2Et	$N(Et)_2$	NH	3	F
SO_2Et	NMe(Et)	NH	3	F
SO_2Ph	SMe	S	1	F
SO_2Ph	SEt	S	1	F
SO_2Ph	S-*n*-Pr	S	1	F
SO_2Ph	S-*i*-Pr	S	1	F
SO_2Ph	OMe	S	1	F
SO_2Ph	OEt	S	1	F
SO_2Ph	O-*n*-Pr	S	1	F
SO_2Ph	O-*i*-Pr	S	1	F
SO_2Ph	NHMe	S	1	F
SO_2Ph	NHEt	S	1	F
SO_2Ph	$N(Me)_2$	S	1	F
SO_2Ph	$N(Et)_2$	S	1	F
SO_2Ph	NMe(Et)	S	1	F
SO_2Ph	SMe	S	3	F
SO_2Ph	SEt	S	3	F
SO_2Ph	S-*n*-Pr	S	3	F

J^1	A	Z	n	Y
SO_2Ph	S-*i*-Pr	S	3	H
SO_2Ph	OMe	S	3	H
SO_2Ph	OEt	S	3	H
SO_2Ph	O-*n*-Pr	S	3	H
SO_2Ph	O-*i*-Pr	S	3	H
SO_2Ph	NHMe	S	3	H
SO_2Ph	NHEt	S	3	H
SO_2Ph	$N(Me)_2$	S	3	H
SO_2Ph	$N(Et)_2$	S	3	H
SO_2Ph	NMe(Et)	S	3	H
SO_2Ph	SMe	O	1	H
SO_2Ph	SEt	O	1	H
SO_2Ph	S-*n*-Pr	O	1	H
SO_2Ph	S-*i*-Pr	O	1	H
SO_2Ph	OMe	O	1	H
SO_2Ph	OEt	O	1	H
SO_2Ph	O-*n*-Pr	O	1	H
SO_2Ph	O-*i*-Pr	O	1	H
SO_2Ph	NHMe	O	1	H
SO_2Ph	NHEt	O	1	H
SO_2Ph	$N(Me)_2$	O	1	H
SO_2Ph	$N(Et)_2$	O	1	H
SO_2Ph	NMe(Et)	O	1	H
SO_2Ph	SMe	O	3	H
SO_2Ph	SEt	O	3	H
SO_2Ph	S-*n*-Pr	O	3	H
SO_2Ph	S-*i*-Pr	O	3	H
SO_2Ph	OMe	O	3	H
SO_2Ph	OEt	O	3	H
SO_2Ph	O-*n*-Pr	O	3	H
SO_2Ph	O-*i*-Pr	O	3	H
SO_2Ph	NHMe	O	3	H
SO_2Ph	NHEt	O	3	H
SO_2Ph	$N(Me)_2$	O	3	H
SO_2Ph	$N(Et)_2$	O	3	H
SO_2Ph	NMe(Et)	O	3	H
SO_2Ph	SMe	NH	1	H
SO_2Ph	S-*i*-Pr	S	3	F
SO_2Ph	OMe	S	3	F
SO_2Ph	OEt	S	3	F
SO_2Ph	O-*n*-Pr	S	3	F
SO_2Ph	O-*i*-Pr	S	3	F
SO_2Ph	NHMe	S	3	F
SO_2Ph	NHEt	S	3	F
SO_2Ph	$N(Me)_2$	S	3	F
SO_2Ph	$N(Et)_2$	S	3	F
SO_2Ph	NMe(Et)	S	3	F
SO_2Ph	SMe	O	1	F
SO_2Ph	SEt	O	1	F
SO_2Ph	S-*n*-Pr	O	1	F
SO_2Ph	S-*i*-Pr	O	1	F
SO_2Ph	OMe	O	1	F
SO_2Ph	OEt	O	1	F
SO_2Ph	O-*n*-Pr	O	1	F
SO_2Ph	O-*i*-Pr	O	1	F
SO_2Ph	NHMe	O	1	F
SO_2Ph	NHEt	O	1	F
SO_2Ph	$N(Me)_2$	O	1	F
SO_2Ph	$N(Et)_2$	O	1	F
SO_2Ph	NMe(Et)	O	1	F
SO_2Ph	SMe	O	3	F
SO_2Ph	SEt	O	3	F
SO_2Ph	S-*n*-Pr	O	3	F
SO_2Ph	S-*i*-Pr	O	3	F
SO_2Ph	OMe	O	3	F
SO_2Ph	OEt	O	3	F
SO_2Ph	O-*n*-Pr	O	3	F
SO_2Ph	O-*i*-Pr	O	3	F
SO_2Ph	NHMe	O	3	F
SO_2Ph	NHEt	O	3	F
SO_2Ph	$N(Me)_2$	O	3	F
SO_2Ph	$N(Et)_2$	O	3	F
SO_2Ph	NMe(Et)	O	3	F
SO_2Ph	SMe	NH	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
SO_2Ph	SEt	NH	1	H	SO_2Ph	SEt	NH	1	F
SO_2Ph	S-*n*-Pr	NH	1	H	SO_2Ph	S-*n*-Pr	NH	1	F
SO_2Ph	S-*i*-Pr	NH	1	H	SO_2Ph	S-*i*-Pr	NH	1	F
SO_2Ph	OMe	NH	1	H	SO_2Ph	OMe	NH	1	F
SO_2Ph	OEt	NH	1	H	SO_2Ph	OEt	NH	1	F
SO_2Ph	O-*n*-Pr	NH	1	H	SO_2Ph	O-*n*-Pr	NH	1	F
SO_2Ph	O-*i*-Pr	NH	1	H	SO_2Ph	O-*i*-Pr	NH	1	F
SO_2Ph	NHMe	NH	1	H	SO_2Ph	NHMe	NH	1	F
SO_2Ph	NHEt	NH	1	H	SO_2Ph	NHEt	NH	1	F
SO_2Ph	$N(Me)_2$	NH	1	H	SO_2Ph	$N(Me)_2$	NH	1	F
SO_2Ph	$N(Et)_2$	NH	1	H	SO_2Ph	$N(Et)_2$	NH	1	F
SO_2Ph	NMe(Et)	NH	1	H	SO_2Ph	NMe(Et)	NH	1	F
SO_2Ph	SMe	NH	3	H	SO_2Ph	SMe	NH	3	F
SO_2Ph	SEt	NH	3	H	SO_2Ph	SEt	NH	3	F
SO_2Ph	S-*n*-Pr	NH	3	H	SO_2Ph	S-*n*-Pr	NH	3	F
SO_2Ph	S-*i*-Pr	NH	3	H	SO_2Ph	S-*i*-Pr	NH	3	F
SO_2Ph	OMe	NH	3	H	SO_2Ph	OMe	NH	3	F
SO_2Ph	OEt	NH	3	H	SO_2Ph	OEt	NH	3	F
SO_2Ph	O-*n*-Pr	NH	3	H	SO_2Ph	O-*n*-Pr	NH	3	F
SO_2Ph	O-*i*-Pr	NH	3	H	SO_2Ph	O-*i*-Pr	NH	3	F
SO_2Ph	NHMe	NH	3	H	SO_2Ph	NHMe	NH	3	F
SO_2Ph	NHEt	NH	3	H	SO_2Ph	NHEt	NH	3	F
SO_2Ph	$N(Me)_2$	NH	3	H	SO_2Ph	$N(Me)_2$	NH	3	F
SO_2Ph	$N(Et)_2$	NH	3	H	SO_2Ph	$N(Et)_2$	NH	3	F
SO_2Ph	NMe(Et)	NH	3	H	SO_2Ph	NMe(Et)	NH	3	F
NO_2	SMe	S	1	H	NO_2	SMe	S	1	F
NO_2	SEt	S	1	H	NO_2	SEt	S	1	F
NO_2	S-*n*-Pr	S	1	H	NO_2	S-*n*-Pr	S	1	F
NO_2	S-*i*-Pr	S	1	H	NO_2	S-*i*-Pr	S	1	F
NO_2	OMe	S	1	H	NO_2	OMe	S	1	F
NO_2	OEt	S	1	H	NO_2	OEt	S	1	F
NO_2	O-*n*-Pr	S	1	H	NO_2	O-*n*-Pr	S	1	F
NO_2	O-*i*-Pr	S	1	H	NO_2	O-*i*-Pr	S	1	F
NO_2	NHMe	S	1	H	NO_2	NHMe	S	1	F
NO_2	NHEt	S	1	H	NO_2	NHEt	S	1	F
NO_2	$N(Me)_2$	S	1	H	NO_2	$N(Me)_2$	S	1	F
NO_2	$N(Et)_2$	S	1	H	NO_2	$N(Et)_2$	S	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
NO_2	NMe(Et)	S	1	H	NO_2	NMe(Et)	S	1	F
NO_2	SMe	S	3	H	NO_2	SMe	S	3	F
NO_2	SEt	S	3	H	NO_2	SEt	S	3	F
NO_2	S-*n*-Pr	S	3	H	NO_2	S-*n*-Pr	S	3	F
NO_2	S-*i*-Pr	S	3	H	NO_2	S-*i*-Pr	S	3	F
NO_2	OMe	S	3	H	NO_2	OMe	S	3	F
NO_2	OEt	S	3	H	NO_2	OEt	S	3	F
NO_2	O-*n*-Pr	S	3	H	NO_2	O-*n*-Pr	S	3	F
NO_2	O-*i*-Pr	S	3	H	NO_2	O-*i*-Pr	S	3	F
NO_2	NHMe	S	3	H	NO_2	NHMe	S	3	F
NO_2	NHEt	S	3	H	NO_2	NHEt	S	3	F
NO_2	$N(Me)_2$	S	3	H	NO_2	$N(Me)_2$	S	3	F
NO_2	$N(Et)_2$	S	3	H	NO_2	$N(Et)_2$	S	3	F
NO_2	NMe(Et)	S	3	H	NO_2	NMe(Et)	S	3	F
NO_2	SMe	O	1	H	NO_2	SMe	O	1	F
NO_2	SEt	O	1	H	NO_2	SEt	O	1	F
NO_2	S-*n*-Pr	O	1	H	NO_2	S-*n*-Pr	O	1	F
NO_2	S-*i*-Pr	O	1	H	NO_2	S-*i*-Pr	O	1	F
NO_2	OMe	O	1	H	NO_2	OMe	O	1	F
NO_2	OEt	O	1	H	NO_2	OEt	O	1	F
NO_2	O-*n*-Pr	O	1	H	NO_2	O-*n*-Pr	O	1	F
NO_2	O-*i*-Pr	O	1	H	NO_2	O-*i*-Pr	O	1	F
NO_2	NHMe	O	1	H	NO_2	NHMe	O	1	F
NO_2	NHEt	O	1	H	NO_2	NHEt	O	1	F
NO_2	$N(Me)_2$	O	1	H	NO_2	$N(Me)_2$	O	1	F
NO_2	$N(Et)_2$	O	1	H	NO_2	$N(Et)_2$	O	1	F
NO_2	NMe(Et)	O	1	H	NO_2	NMe(Et)	O	1	F
NO_2	SMe	O	3	H	NO_2	SMe	O	3	F
NO_2	SEt	O	3	H	NO_2	SEt	O	3	F
NO_2	S-*n*-Pr	O	3	H	NO_2	S-*n*-Pr	O	3	F
NO_2	S-*i*-Pr	O	3	H	NO_2	S-*i*-Pr	O	3	F
NO_2	OMe	O	3	H	NO_2	OMe	O	3	F
NO_2	OEt	O	3	H	NO_2	OEt	O	3	F
NO_2	O-*n*-Pr	O	3	H	NO_2	O-*n*-Pr	O	3	F
NO_2	O-*i*-Pr	O	3	H	NO_2	O-*i*-Pr	O	3	F
NO_2	NHMe	O	3	H	NO_2	NHMe	O	3	F
NO_2	NHEt	O	3	H	NO_2	NHEt	O	3	F

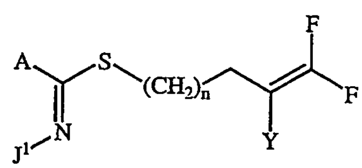
J^1	A	Z	n	Y
NO_2	$N(Me)_2$	O	3	H
NO_2	$N(Et)_2$	O	3	H
NO_2	NMe(Et)	O	3	H
NO_2	SMe	NH	1	H
NO_2	SEt	NH	1	H
NO_2	S-*n*-Pr	NH	1	H
NO_2	S-*i*-Pr	NH	1	H
NO_2	OMe	NH	1	H
NO_2	OEt	NH	1	H
NO_2	O-*n*-Pr	NH	1	H
NO_2	O-*i*-Pr	NH	1	H
NO_2	SMe	NH	3	H
NO_2	SEt	NH	3	H
NO_2	S-*n*-Pr	NH	3	H
NO_2	S-*i*-Pr	NH	3	H
NO_2	OMe	NH	3	H
NO_2	OEt	NH	3	H
NO_2	O-*n*-Pr	NH	3	H
NO_2	O-*i*-Pr	NH	3	H
C(=O)Ph	SMe	S	1	H
C(=O)Ph	SEt	S	1	H
C(=O)Ph	S-*n*-Pr	S	1	H
C(=O)Ph	S-*i*-Pr	S	1	H
C(=O)Ph	OMe	S	1	H
C(=O)Ph	OEt	S	1	H
C(=O)Ph	O-*n*-Pr	S	1	H
C(=O)Ph	O-*i*-Pr	S	1	H
C(=O)Ph	NHMe	S	1	H
C(=O)Ph	NHEt	S	1	H
C(=O)Ph	$N(Me)_2$	S	1	H
C(=O)Ph	$N(Et)_2$	S	1	H
C(=O)Ph	NMe(Et)	S	1	H
C(=O)Ph	SMe	S	3	H
C(=O)Ph	SEt	S	3	H
C(=O)Ph	S-*n*-Pr	S	3	H
C(=O)Ph	S-*i*-Pr	S	3	H
C(=O)Ph	OMe	S	3	H

J^1	A	Z	n	Y
NO_2	$N(Me)_2$	O	3	F
NO_2	$N(Et)_2$	O	3	F
NO_2	NMe(Et)	O	3	F
NO_2	SMe	NH	1	F
NO_2	SEt	NH	1	F
NO_2	S-*n*-Pr	NH	1	F
NO_2	S-*i*-Pr	NH	1	F
NO_2	OMe	NH	1	F
NO_2	OEt	NH	1	F
NO_2	O-*n*-Pr	NH	1	F
NO_2	O-*i*-Pr	NH	1	F
NO_2	SMe	NH	3	F
NO_2	SEt	NH	3	F
NO_2	S-*n*-Pr	NH	3	F
NO_2	S-*i*-Pr	NH	3	F
NO_2	OMe	NH	3	F
NO_2	OEt	NH	3	F
NO_2	O-*n*-Pr	NH	3	F
NO_2	O-*i*-Pr	NH	3	F
C(=O)Ph	SMe	S	1	F
C(=O)Ph	SEt	S	1	F
C(=O)Ph	S-*n*-Pr	S	1	F
C(=O)Ph	S-*i*-Pr	S	1	F
C(=O)Ph	OMe	S	1	F
C(=O)Ph	OEt	S	1	F
C(=O)Ph	O-*n*-Pr	S	1	F
C(=O)Ph	O-*i*-Pr	S	1	F
C(=O)Ph	NHMe	S	1	F
C(=O)Ph	NHEt	S	1	F
C(=O)Ph	$N(Me)_2$	S	1	F
C(=O)Ph	$N(Et)_2$	S	1	F
C(=O)Ph	NMe(Et)	S	1	F
C(=O)Ph	SMe	S	3	F
C(=O)Ph	SEt	S	3	F
C(=O)Ph	S-*n*-Pr	S	3	F
C(=O)Ph	S-*i*-Pr	S	3	F
C(=O)Ph	OMe	S	3	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
C(=O)Ph	OEt	S	3	H	C(=O)Ph	OEt	S	3	F
C(=O)Ph	O-*n*-Pr	S	3	H	C(=O)Ph	O-*n*-Pr	S	3	F
C(=O)Ph	O-*i*-Pr	S	3	H	C(=O)Ph	O-*i*-Pr	S	3	F
C(=O)Ph	NHMe	S	3	H	C(=O)Ph	NHMe	S	3	F
C(=O)Ph	NHEt	S	3	H	C(=O)Ph	NHEt	S	3	F
C(=O)Ph	$N(Me)_2$	S	3	H	C(=O)Ph	$N(Me)_2$	S	3	F
C(=O)Ph	$N(Et)_2$	S	3	H	C(=O)Ph	$N(Et)_2$	S	3	F
C(=O)Ph	NMe(Et)	S	3	H	C(=O)Ph	NMe(Et)	S	3	F
C(=O)Ph	SMe	O	1	H	C(=O)Ph	SMe	O	1	F
C(=O)Ph	SEt	O	1	H	C(=O)Ph	SEt	O	1	F
C(=O)Ph	S-*n*-Pr	O	1	H	C(=O)Ph	S-*n*-Pr	O	1	F
C(=O)Ph	S-*i*-Pr	O	1	H	C(=O)Ph	S-*i*-Pr	O	1	F
C(=O)Ph	OMe	O	1	H	C(=O)Ph	OMe	O	1	F
C(=O)Ph	OEt	O	1	H	C(=O)Ph	OEt	O	1	F
C(=O)Ph	O-*n*-Pr	O	1	H	C(=O)Ph	O-*n*-Pr	O	1	F
C(=O)Ph	O-*i*-Pr	O	1	H	C(=O)Ph	O-*i*-Pr	O	1	F
C(=O)Ph	NHMe	O	1	H	C(=O)Ph	NHMe	O	1	F
C(=O)Ph	NHEt	O	1	H	C(=O)Ph	NHEt	O	1	F
C(=O)Ph	$N(Me)_2$	O	1	H	C(=O)Ph	$N(Me)_2$	O	1	F
C(=O)Ph	$N(Et)_2$	O	1	H	C(=O)Ph	$N(Et)_2$	O	1	F
C(=O)Ph	NMe(Et)	O	1	H	C(=O)Ph	NMe(Et)	O	1	F
C(=O)Ph	SMe	O	3	H	C(=O)Ph	SMe	O	3	F
C(=O)Ph	SEt	O	3	H	C(=O)Ph	SEt	O	3	F
C(=O)Ph	S-*n*-Pr	O	3	H	C(=O)Ph	S-*n*-Pr	O	3	F
C(=O)Ph	S-*i*-Pr	O	3	H	C(=O)Ph	S-*i*-Pr	O	3	F
C(=O)Ph	OMe	O	3	H	C(=O)Ph	OMe	O	3	F
C(=O)Ph	OEt	O	3	H	C(=O)Ph	OEt	O	3	F
C(=O)Ph	O-*n*-Pr	O	3	H	C(=O)Ph	O-*n*-Pr	O	3	F
C(=O)Ph	O-*i*-Pr	O	3	H	C(=O)Ph	O-*i*-Pr	O	3	F
C(=O)Ph	NHMe	O	3	H	C(=O)Ph	NHMe	O	3	F
C(=O)Ph	NHEt	O	3	H	C(=O)Ph	NHEt	O	3	F
C(=O)Ph	$N(Me)_2$	O	3	H	C(=O)Ph	$N(Me)_2$	O	3	F
C(=O)Ph	$N(Et)_2$	O	3	H	C(=O)Ph	$N(Et)_2$	O	3	F
C(=O)Ph	NMe(Et)	O	3	H	C(=O)Ph	NMe(Et)	O	3	F
C(=O)Ph	SMe	NH	1	H	C(=O)Ph	SMe	NH	1	F
C(=O)Ph	SEt	NH	1	H	C(=O)Ph	SEt	NH	1	F
C(=O)Ph	S-*n*-Pr	NH	1	H	C(=O)Ph	S-*n*-Pr	NH	1	F

J^1	A	Z	n	Y	J^1	A	Z	n	Y
C(=O)Ph	S-*i*-Pr	NH	1	H	C(=O)Ph	S-*i*-Pr	NH	1	F
C(=O)Ph	OMe	NH	1	H	C(=O)Ph	OMe	NH	1	F
C(=O)Ph	OEt	NH	1	H	C(=O)Ph	OEt	NH	1	F
C(=O)Ph	O-*n*-Pr	NH	1	H	C(=O)Ph	O-*n*-Pr	NH	1	F
C(=O)Ph	O-*i*-Pr	NH	1	H	C(=O)Ph	O-*i*-Pr	NH	1	F
C(=O)Ph	NHMe	NH	1	H	C(=O)Ph	NHMe	NH	1	F
C(=O)Ph	NHEt	NH	1	H	C(=O)Ph	NHEt	NH	1	F
C(=O)Ph	$N(Me)_2$	NH	1	H	C(=O)Ph	$N(Me)_2$	NH	1	F
C(=O)Ph	$N(Et)_2$	NH	1	H	C(=O)Ph	$N(Et)_2$	NH	1	F
C(=O)Ph	NMe(Et)	NH	1	H	C(=O)Ph	NMe(Et)	NH	1	F
C(=O)Ph	SMe	NH	3	H	C(=O)Ph	SMe	NH	3	F
C(=O)Ph	SEt	NH	3	H	C(=O)Ph	SEt	NH	3	F
C(=O)Ph	S-*n*-Pr	NH	3	H	C(=O)Ph	S-*n*-Pr	NH	3	F
C(=O)Ph	S-*i*-Pr	NH	3	H	C(=O)Ph	S-*i*-Pr	NH	3	F
C(=O)Ph	OMe	NH	3	H	C(=O)Ph	OMe	NH	3	F
C(=O)Ph	OEt	NH	3	H	C(=O)Ph	OEt	NH	3	F
C(=O)Ph	O-*n*-Pr	NH	3	H	C(=O)Ph	O-*n*-Pr	NH	3	F
C(=O)Ph	O-*i*-Pr	NH	3	H	C(=O)Ph	O-*i*-Pr	NH	3	F
C(=O)Ph	NHMe	NH	3	H	C(=O)Ph	NHMe	NH	3	F
C(=O)Ph	NHEt	NH	3	H	C(=O)Ph	NHEt	NH	3	F
C(=O)Ph	$N(Me)_2$	NH	3	H	C(=O)Ph	$N(Me)_2$	NH	3	F
C(=O)Ph	$N(Et)_2$	NH	3	H	C(=O)Ph	$N(Et)_2$	NH	3	F
C(=O)Ph	NMe(Et)	NH	3	H	C(=O)Ph	NMe(Et)	NH	3	F

Table 7



J^1	A	n	Y	J^1	A	n	Y
Ph	CN	1	H	Ph	CN	1	F
2-Cl-Ph	CN	1	H	2-Cl-Ph	CN	1	F
2-F-Ph	CN	1	H	2-F-Ph	CN	1	F
2-Me-Ph	CN	1	H	2-Me-Ph	CN	1	F
2-OMe-Ph	CN	1	H	2-OMe-Ph	CN	1	F
2-SMe-Ph	CN	1	H	2-SMe-Ph	CN	1	F
$2-CF_3-Ph$	CN	1	H	$2-CF_3-Ph$	CN	1	F

J^1	A	n	Y	J^1	A	n	Y
2-CN-Ph	CN	1	H	2-CN-Ph	CN	1	F
2-NO_2-Ph	CN	1	H	2-NO_2-Ph	CN	1	F
3-Cl-Ph	CN	1	H	3-Cl-Ph	CN	1	F
3-F-Ph	CN	1	H	3-F-Ph	CN	1	F
3-Me-Ph	CN	1	H	3-Me-Ph	CN	1	F
3-OMe-Ph	CN	1	H	3-OMe-Ph	CN	1	F
3-SMe-Ph	CN	1	H	3-SMe-Ph	CN	1	F
3-CF_3-Ph	CN	1	H	3-CF_3-Ph	CN	1	F
3-CN-Ph	CN	1	H	3-CN-Ph	CN	1	F
3-NO_2-Ph	CN	1	H	3-NO_2-Ph	CN	1	F
4-Cl-Ph	CN	1	H	4-Cl-Ph	CN	1	F
4-F-Ph	CN	1	H	4-F-Ph	CN	1	F
4-Me-Ph	CN	1	H	4-Me-Ph	CN	1	F
4-OMe-Ph	CN	1	H	4-OMe-Ph	CN	1	F
4-SMe-Ph	CN	1	H	4-SMe-Ph	CN	1	F
4-CF_3-Ph	CN	1	H	4-CF_3-Ph	CN	1	F
4-CN-Ph	CN	1	H	4-CN-Ph	CN	1	F
4-NO_2-Ph	CN	1	H	4-NO_2-Ph	CN	1	F
2,3-di-F-Ph	CN	1	H	2,3-di-F-Ph	CN	1	F
2,4-di-F-Ph	CN	1	H	2,4-di-F-Ph	CN	1	F
2,5-di-F-Ph	CN	1	H	2,5-di-F-Ph	CN	1	F
2,6-di-F-Ph	CN	1	H	2,6-di-F-Ph	CN	1	F
3,4-di-F-Ph	CN	1	H	3,4-di-F-Ph	CN	1	F
3,5-di-F-Ph	CN	1	H	3,5-di-F-Ph	CN	1	F
2,3-di-Cl-Ph	CN	1	H	2,3-di-Cl-Ph	CN	1	F
2,4-di-Cl-Ph	CN	1	H	2,4-di-Cl-Ph	CN	1	F
2,5-di-Cl-Ph	CN	1	H	2,5-di-Cl-Ph	CN	1	F
2,6-di-Cl-Ph	CN	1	H	2,6-di-Cl-Ph	CN	1	F
3,4-di-Cl-Ph	CN	1	H	3,4-di-Cl-Ph	CN	1	F
3,5-di-Cl-Ph	CN	1	H	3,5-di-Cl-Ph	CN	1	F
2,4,6-tri-F-Ph	CN	1	H	2,4,6-tri-F-Ph	CN	1	F
2,4,6-tri-Cl-Ph	CN	1	H	2,4,6-tri-Cl-Ph	CN	1	F
2-F-4-CF_3-6-F-Ph	CN	1	H	2-F-4-CF_3-6-F-Ph	CN	1	F
2-Cl-4-CF_3-6-Cl-Ph	CN	1	H	2-Cl-4-CF_3-6-Cl-Ph	CN	1	F
2-pyridinyl	CN	1	H	2-pyridinyl	CN	1	F
3-pyridinyl	CN	1	H	3-pyridinyl	CN	1	F
4-pyridinyl	CN	1	H	4-pyridinyl	CN	1	F

J^1	A	n	Y	J^1	A	n	Y
Ph	CN	3	H	Ph	CN	3	F
2-Cl-Ph	CN	3	H	2-Cl-Ph	CN	3	F
2-F-Ph	CN	3	H	2-F-Ph	CN	3	F
2-Me-Ph	CN	3	H	2-Me-Ph	CN	3	F
2-OMe-Ph	CN	3	H	2-OMe-Ph	CN	3	F
2-SMe-Ph	CN	3	H	2-SMe-Ph	CN	3	F
2-CF_3-Ph	CN	3	H	2-CF_3-Ph	CN	3	F
2-CN-Ph	CN	3	H	2-CN-Ph	CN	3	F
2-NO_2-Ph	CN	3	H	2-NO_2-Ph	CN	3	F
3-Cl-Ph	CN	3	H	3-Cl-Ph	CN	3	F
3-F-Ph	CN	3	H	3-F-Ph	CN	3	F
3-Me-Ph	CN	3	H	3-Me-Ph	CN	3	F
3-OMe-Ph	CN	3	H	3-OMe-Ph	CN	3	F
3-SMe-Ph	CN	3	H	3-SMe-Ph	CN	3	F
3-CF_3-Ph	CN	3	H	3-CF_3-Ph	CN	3	F
3-CN-Ph	CN	3	H	3-CN-Ph	CN	3	F
3-NO_2-Ph	CN	3	H	3-NO_2-Ph	CN	3	F
4-Cl-Ph	CN	3	H	4-Cl-Ph	CN	3	F
4-F-Ph	CN	3	H	4-F-Ph	CN	3	F
4-Me-Ph	CN	3	H	4-Me-Ph	CN	3	F
4-OMe-Ph	CN	3	H	4-OMe-Ph	CN	3	F
4-SMe-Ph	CN	3	H	4-SMe-Ph	CN	3	F
4-CF_3-Ph	CN	3	H	4-CF_3-Ph	CN	3	F
4-CN-Ph	CN	3	H	4-CN-Ph	CN	3	F
4-NO_2-Ph	CN	3	H	4-NO_2-Ph	CN	3	F
2,3-di-F-Ph	CN	3	H	2,3-di-F-Ph	CN	3	F
2,4-di-F-Ph	CN	3	H	2,4-di-F-Ph	CN	3	F
2,5-di-F-Ph	CN	3	H	2,5-di-F-Ph	CN	3	F
2,6-di-F-Ph	CN	3	H	2,6-di-F-Ph	CN	3	F
3,4-di-F-Ph	CN	3	H	3,4-di-F-Ph	CN	3	F
3,5-di-F-Ph	CN	3	H	3,5-di-F-Ph	CN	3	F
2,3-di-Cl-Ph	CN	3	H	2,3-di-Cl-Ph	CN	3	F
2,4-di-Cl-Ph	CN	3	H	2,4-di-Cl-Ph	CN	3	F
2,5-di-Cl-Ph	CN	3	H	2,5-di-Cl-Ph	CN	3	F
2,6-di-Cl-Ph	CN	3	H	2,6-di-Cl-Ph	CN	3	F
3,4-di-Cl-Ph	CN	3	H	3,4-di-Cl-Ph	CN	3	F
3,5-di-Cl-Ph	CN	3	H	3,5-di-Cl-Ph	CN	3	F

J^1	A	n	Y	J^1	A	n	Y
2,4,6-tri-F-Ph	CN	3	H	2,4,6-tri-F-Ph	CN	3	F
2,4,6-tri-Cl-Ph	CN	3	H	2,4,6-tri-Cl-Ph	CN	3	F
2-F-4-CF_3-6-F-Ph	CN	3	H	2-F-4-CF_3-6-F-Ph	CN	3	F
2-Cl-4-CF_3-6-Cl-Ph	CN	3	H	2-Cl-4-CF_3-6-Cl-Ph	CN	3	F
2-pyridinyl	CN	3	H	2-pyridinyl	CN	3	F
3-pyridinyl	CN	3	H	3-pyridinyl	CN	3	F
4-pyridinyl	CN	3	H	4-pyridinyl	CN	3	F
Ph	Me	1	H	Ph	Me	1	F
2-Cl-Ph	Me	1	H	2-Cl-Ph	Me	1	F
2-F-Ph	Me	1	H	2-F-Ph	Me	1	F
2-Me-Ph	Me	1	H	2-Me-Ph	Me	1	F
2-OMe-Ph	Me	1	H	2-OMe-Ph	Me	1	F
2-SMe-Ph	Me	1	H	2-SMe-Ph	Me	1	F
2-CF_3-Ph	Me	1	H	2-CF_3-Ph	Me	1	F
2-CN-Ph	Me	1	H	2-CN-Ph	Me	1	F
2-NO_2-Ph	Me	1	H	2-NO_2-Ph	Me	1	F
3-Cl-Ph	Me	1	H	3-Cl-Ph	Me	1	F
3-F-Ph	Me	1	H	3-F-Ph	Me	1	F
3-Me-Ph	Me	1	H	3-Me-Ph	Me	1	F
3-OMe-Ph	Me	1	H	3-OMe-Ph	Me	1	F
3-SMe-Ph	Me	1	H	3-SMe-Ph	Me	1	F
3-CF_3-Ph	Me	1	H	3-CF_3-Ph	Me	1	F
3-CN-Ph	Me	1	H	3-CN-Ph	Me	1	F
3-NO_2-Ph	Me	1	H	3-NO_2-Ph	Me	1	F
4-Cl-Ph	Me	1	H	4-Cl-Ph	Me	1	F
4-F-Ph	Me	1	H	4-F-Ph	Me	1	F
4-Me-Ph	Me	1	H	4-Me-Ph	Me	1	F
4-OMe-Ph	Me	1	H	4-OMe-Ph	Me	1	F
4-SMe-Ph	Me	1	H	4-SMe-Ph	Me	1	F
4-CF_3-Ph	Me	1	H	4-CF_3-Ph	Me	1	F
4-CN-Ph	Me	1	H	4-CN-Ph	Me	1	F
4-NO_2-Ph	Me	1	H	4-NO_2-Ph	Me	1	F
2,3-di-F-Ph	Me	1	H	2,3-di-F-Ph	Me	1	F
2,4-di-F-Ph	Me	1	H	2,4-di-F-Ph	Me	1	F
2,5-di-F-Ph	Me	1	H	2,5-di-F-Ph	Me	1	F
2,6-di-F-Ph	Me	1	H	2,6-di-F-Ph	Me	1	F
3,4-di-F-Ph	Me	1	H	3,4-di-F-Ph	Me	1	F

J^1	A	n	Y	J^1	A	n	Y
3,5-di-F-Ph	Me	1	H	3,5-di-F-Ph	Me	1	F
2,3-di-Cl-Ph	Me	1	H	2,3-di-Cl-Ph	Me	1	F
2,4-di-Cl-Ph	Me	1	H	2,4-di-Cl-Ph	Me	1	F
2,5-di-Cl-Ph	Me	1	H	2,5-di-Cl-Ph	Me	1	F
2,6-di-Cl-Ph	Me	1	H	2,6-di-Cl-Ph	Me	1	F
3,4-di-Cl-Ph	Me	1	H	3,4-di-Cl-Ph	Me	1	F
3,5-di-Cl-Ph	Me	1	H	3,5-di-Cl-Ph	Me	1	F
2,4,6-tri-F-Ph	Me	1	H	2,4,6-tri-F-Ph	Me	1	F
2,4,6-tri-Cl-Ph	Me	1	H	2,4,6-tri-Cl-Ph	Me	1	F
2-F-4-CF_3-6-F-Ph	Me	1	H	2-F-4-CF_3-6-F-Ph	Me	1	F
2-Cl-4-CF_3-6-Cl-Ph	Me	1	H	2-Cl-4-CF_3-6-Cl-Ph	Me	1	F
2-pyridinyl	Me	1	H	2-pyridinyl	Me	1	F
3-pyridinyl	Me	1	H	3-pyridinyl	Me	1	F
4-pyridinyl	Me	1	H	4-pyridinyl	Me	1	F
Ph	Me	3	H	Ph	Me	3	F
2-Cl-Ph	Me	3	H	2-Cl-Ph	Me	3	F
2-F-Ph	Me	3	H	2-F-Ph	Me	3	F
2-Me-Ph	Me	3	H	2-Me-Ph	Me	3	F
2-OMe-Ph	Me	3	H	2-OMe-Ph	Me	3	F
2-SMe-Ph	Me	3	H	2-SMe-Ph	Me	3	F
2-CF_3-Ph	Me	3	H	2-CF_3-Ph	Me	3	F
2-CN-Ph	Me	3	H	2-CN-Ph	Me	3	F
2-NO_2-Ph	Me	3	H	2-NO_2-Ph	Me	3	F
3-Cl-Ph	Me	3	H	3-Cl-Ph	Me	3	F
3-F-Ph	Me	3	H	3-F-Ph	Me	3	F
3-Me-Ph	Me	3	H	3-Me-Ph	Me	3	F
3-OMe-Ph	Me	3	H	3-OMe-Ph	Me	3	F
3-SMe-Ph	Me	3	H	3-SMe-Ph	Me	3	F
3-CF_3-Ph	Me	3	H	3-CF_3-Ph	Me	3	F
3-CN-Ph	Me	3	H	3-CN-Ph	Me	3	F
3-NO_2-Ph	Me	3	H	3-NO_2-Ph	Me	3	F
4-Cl-Ph	Me	3	H	4-Cl-Ph	Me	3	F
4-F-Ph	Me	3	H	4-F-Ph	Me	3	F
4-Me-Ph	Me	3	H	4-Me-Ph	Me	3	F
4-OMe-Ph	Me	3	H	4-OMe-Ph	Me	3	F
4-SMe-Ph	Me	3	H	4-SMe-Ph	Me	3	F
4-CF_3-Ph	Me	3	H	4-CF_3-Ph	Me	3	F

J^1	A	n	Y	J^1	A	n	Y
4-CN-Ph	Me	3	H	4-CN-Ph	Me	3	F
4-NO_2-Ph	Me	3	H	4-NO_2-Ph	Me	3	F
2,3-di-F-Ph	Me	3	H	2,3-di-F-Ph	Me	3	F
2,4-di-F-Ph	Me	3	H	2,4-di-F-Ph	Me	3	F
2,5-di-F-Ph	Me	3	H	2,5-di-F-Ph	Me	3	F
2,6-di-F-Ph	Me	3	H	2,6-di-F-Ph	Me	3	F
3,4-di-F-Ph	Me	3	H	3,4-di-F-Ph	Me	3	F
3,5-di-F-Ph	Me	3	H	3,5-di-F-Ph	Me	3	F
2,3-di-Cl-Ph	Me	3	H	2,3-di-Cl-Ph	Me	3	F
2,4-di-Cl-Ph	Me	3	H	2,4-di-Cl-Ph	Me	3	F
2,5-di-Cl-Ph	Me	3	H	2,5-di-Cl-Ph	Me	3	F
2,6-di-Cl-Ph	Me	3	H	2,6-di-Cl-Ph	Me	3	F
3,4-di-Cl-Ph	Me	3	H	3,4-di-Cl-Ph	Me	3	F
3,5-di-Cl-Ph	Me	3	H	3,5-di-Cl-Ph	Me	3	F
2,4,6-tri-F-Ph	Me	3	H	2,4,6-tri-F-Ph	Me	3	F
2,4,6-tri-Cl-Ph	Me	3	H	2,4,6-tri-Cl-Ph	Me	3	F
2-F-4-CF_3-6-F-Ph	Me	3	H	2-F-4-CF_3-6-F-Ph	Me	3	F
2-Cl-4-CF_3-6-Cl-Ph	Me	3	H	2-Cl-4-CF_3-6-Cl-Ph	Me	3	F
2-pyridinyl	Me	3	H	2-pyridinyl	Me	3	F
3-pyridinyl	Me	3	H	3-pyridinyl	Me	3	F
4-pyridinyl	Me	3	H	4-pyridinyl	Me	3	F
Ph	Et	1	H	Ph	Me	1	F
2-Cl-Ph	Et	1	H	2-Cl-Ph	Me	1	F
2-F-Ph	Et	1	H	2-F-Ph	Me	1	F
2-Me-Ph	Et	1	H	2-Me-Ph	Me	1	F
2-OMe-Ph	Et	1	H	2-OMe-Ph	Me	1	F
2-SMe-Ph	Et	1	H	2-SMe-Ph	Me	1	F
2-CF_3-Ph	Et	1	H	2-CF_3-Ph	Me	1	F
2-CN-Ph	Et	1	H	2-CN-Ph	Me	1	F
2-NO_2-Ph	Et	1	H	2-NO_2-Ph	Me	1	F
3-Cl-Ph	Et	1	H	3-Cl-Ph	Me	1	F
3-F-Ph	Et	1	H	3-F-Ph	Me	1	F
3-Me-Ph	Et	1	H	3-Me-Ph	Me	1	F
3-OMe-Ph	Et	1	H	3-OMe-Ph	Me	1	F
3-SMe-Ph	Et	1	H	3-SMe-Ph	Me	1	F
3-CF_3-Ph	Et	1	H	3-CF_3-Ph	Me	1	F
3-CN-Ph	Et	1	H	3-CN-Ph	Me	1	F

J^1	A	n	Y	J^1	A	n	Y
3-NO_2-Ph	Et	1	H	3-NO_2-Ph	Me	1	F
4-Cl-Ph	Et	1	H	4-Cl-Ph	Me	1	F
4-F-Ph	Et	1	H	4-F-Ph	Me	1	F
4-Me-Ph	Et	1	H	4-Me-Ph	Me	1	F
4-OMe-Ph	Et	1	H	4-OMe-Ph	Me	1	F
4-SMe-Ph	Et	1	H	4-SMe-Ph	Me	1	F
4-CF_3-Ph	Et	1	H	4-CF_3-Ph	Me	1	F
4-CN-Ph	Et	1	H	4-CN-Ph	Me	1	F
4-NO_2-Ph	Et	1	H	4-NO_2-Ph	Me	1	F
2,3-di-F-Ph	Et	1	H	2,3-di-F-Ph	Me	1	F
2,4-di-F-Ph	Et	1	H	2,4-di-F-Ph	Me	1	F
2,5-di-F-Ph	Et	1	H	2,5-di-F-Ph	Me	1	F
2,6-di-F-Ph	Et	1	H	2,6-di-F-Ph	Me	1	F
3,4-di-F-Ph	Et	1	H	3,4-di-F-Ph	Me	1	F
3,5-di-F-Ph	Et	1	H	3,5-di-F-Ph	Me	1	F
2,3-di-Cl-Ph	Et	1	H	2,3-di-Cl-Ph	Me	1	F
2,4-di-Cl-Ph	Et	1	H	2,4-di-Cl-Ph	Me	1	F
2,5-di-Cl-Ph	Et	1	H	2,5-di-Cl-Ph	Me	1	F
2,6-di-Cl-Ph	Et	1	H	2,6-di-Cl-Ph	Me	1	F
3,4-di-Cl-Ph	Et	1	H	3,4-di-Cl-Ph	Me	1	F
3,5-di-Cl-Ph	Et	1	H	3,5-di-Cl-Ph	Me	1	F
2,4,6-tri-F-Ph	Et	1	H	2,4,6-tri-F-Ph	Me	1	F
2,4,6-tri-Cl-Ph	Et	1	H	2,4,6-tri-Cl-Ph	Me	1	F
2-F-4-CF_3-6-F-Ph	Et	1	H	2-F-4-CF_3-6-F-Ph	Me	1	F
2-Cl-4-CF_3-6-Cl-Ph	Et	1	H	2-Cl-4-CF_3-6-Cl-Ph	Me	1	F
2-pyridinyl	Et	1	H	2-pyridinyl	Me	1	F
3-pyridinyl	Et	1	H	3-pyridinyl	Me	1	F
4-pyridinyl	Et	1	H	4-pyridinyl	Me	1	F
Ph	Et	3	H	Ph	Et	3	F
2-Cl-Ph	Et	3	H	2-Cl-Ph	Et	3	F
2-F-Ph	Et	3	H	2-F-Ph	Et	3	F
2-Me-Ph	Et	3	H	2-Me-Ph	Et	3	F
2-OMe-Ph	Et	3	H	2-OMe-Ph	Et	3	F
2-SMe-Ph	Et	3	H	2-SMe-Ph	Et	3	F
2-CF_3-Ph	Et	3	H	2-CF_3-Ph	Et	3	F
2-CN-Ph	Et	3	H	2-CN-Ph	Et	3	F
2-NO_2-Ph	Et	3	H	2-NO_2-Ph	Et	3	F

J^1	A	n	Y	J^1	A	n	Y
3-Cl-Ph	Et	3	H	3-Cl-Ph	Et	3	F
3-F-Ph	Et	3	H	3-F-Ph	Et	3	F
3-Me-Ph	Et	3	H	3-Me-Ph	Et	3	F
3-OMe-Ph	Et	3	H	3-OMe-Ph	Et	3	F
3-SMe-Ph	Et	3	H	3-SMe-Ph	Et	3	F
3-CF_3-Ph	Et	3	H	3-CF_3-Ph	Et	3	F
3-CN-Ph	Et	3	H	3-CN-Ph	Et	3	F
3-NO_2-Ph	Et	3	H	3-NO_2-Ph	Et	3	F
4-Cl-Ph	Et	3	H	4-Cl-Ph	Et	3	F
4-F-Ph	Et	3	H	4-F-Ph	Et	3	F
4-Me-Ph	Et	3	H	4-Me-Ph	Et	3	F
4-OMe-Ph	Et	3	H	4-OMe-Ph	Et	3	F
4-SMe-Ph	Et	3	H	4-SMe-Ph	Et	3	F
4-CF_3-Ph	Et	3	H	4-CF_3-Ph	Et	3	F
4-CN-Ph	Et	3	H	4-CN-Ph	Et	3	F
4-NO_2-Ph	Et	3	H	4-NO_2-Ph	Et	3	F
2,3-di-F-Ph	Et	3	H	2,3-di-F-Ph	Et	3	F
2,4-di-F-Ph	Et	3	H	2,4-di-F-Ph	Et	3	F
2,5-di-F-Ph	Et	3	H	2,5-di-F-Ph	Et	3	F
2,6-di-F-Ph	Et	3	H	2,6-di-F-Ph	Et	3	F
3,4-di-F-Ph	Et	3	H	3,4-di-F-Ph	Et	3	F
3,5-di-F-Ph	Et	3	H	3,5-di-F-Ph	Et	3	F
2,3-di-Cl-Ph	Et	3	H	2,3-di-Cl-Ph	Et	3	F
2,4-di-Cl-Ph	Et	3	H	2,4-di-Cl-Ph	Et	3	F
2,5-di-Cl-Ph	Et	3	H	2,5-di-Cl-Ph	Et	3	F
2,6-di-Cl-Ph	Et	3	H	2,6-di-Cl-Ph	Et	3	F
3,4-di-Cl-Ph	Et	3	H	3,4-di-Cl-Ph	Et	3	F
3,5-di-Cl-Ph	Et	3	H	3,5-di-Cl-Ph	Et	3	F
2,4,6-tri-F-Ph	Et	3	H	2,4,6-tri-F-Ph	Et	3	F
2,4,6-tri-Cl-Ph	Et	3	H	2,4,6-tri-Cl-Ph	Et	3	F
2-F-4-CF_3-6-F-Ph	Et	3	H	2-F-4-CF_3-6-F-Ph	Et	3	F
2-Cl-4-CF_3-6-Cl-Ph	Et	3	H	2-Cl-4-CF_3-6-Cl-Ph	Et	3	F
2-pyridinyl	Et	3	H	2-pyridinyl	Et	3	F
3-pyridinyl	Et	3	H	3-pyridinyl	Et	3	F
4-pyridinyl	Et	3	H	4-pyridinyl	Et	3	F

J^1	A	n	Y	J^1	A	n	Y
Ph	*i*-Pr	1	H	Ph	*i*-Pr	1	F
2-Cl-Ph	*i*-Pr	1	H	2-Cl-Ph	*i*-Pr	1	F
2-F-Ph	*i*-Pr	1	H	2-F-Ph	*i*-Pr	1	F
2-Me-Ph	*i*-Pr	1	H	2-Me-Ph	*i*-Pr	1	F
2-OMe-Ph	*i*-Pr	1	H	2-OMe-Ph	*i*-Pr	1	F
2-SMe-Ph	*i*-Pr	1	H	2-SMe-Ph	*i*-Pr	1	F
2-CF_3-Ph	*i*-Pr	1	H	2-CF_3-Ph	*i*-Pr	1	F
2-CN-Ph	*i*-Pr	1	H	2-CN-Ph	*i*-Pr	1	F
2-NO_2-Ph	*i*-Pr	1	H	2-NO_2-Ph	*i*-Pr	1	F
3-Cl-Ph	*i*-Pr	1	H	3-Cl-Ph	*i*-Pr	1	F
3-F-Ph	*i*-Pr	1	H	3-F-Ph	*i*-Pr	1	F
3-Me-Ph	*i*-Pr	1	H	3-Me-Ph	*i*-Pr	1	F
3-OMe-Ph	*i*-Pr	1	H	3-OMe-Ph	*i*-Pr	1	F
3-SMe-Ph	*i*-Pr	1	H	3-SMe-Ph	*i*-Pr	1	F
3-CF_3-Ph	*i*-Pr	1	H	3-CF_3-Ph	*i*-Pr	1	F
3-CN-Ph	*i*-Pr	1	H	3-CN-Ph	*i*-Pr	1	F
3-NO_2-Ph	*i*-Pr	1	H	3-NO_2-Ph	*i*-Pr	1	F
4-Cl-Ph	*i*-Pr	1	H	4-Cl-Ph	*i*-Pr	1	F
4-F-Ph	*i*-Pr	1	H	4-F-Ph	*i*-Pr	1	F
4-Me-Ph	*i*-Pr	1	H	4-Me-Ph	*i*-Pr	1	F
4-OMe-Ph	*i*-Pr	1	H	4-OMe-Ph	*i*-Pr	1	F
4-SMe-Ph	*i*-Pr	1	H	4-SMe-Ph	*i*-Pr	1	F
4-CF_3-Ph	*i*-Pr	1	H	4-CF_3-Ph	*i*-Pr	1	F
4-CN-Ph	*i*-Pr	1	H	4-CN-Ph	*i*-Pr	1	F
4-NO_2-Ph	*i*-Pr	1	H	4-NO_2-Ph	*i*-Pr	1	F
2,3-di-F-Ph	*i*-Pr	1	H	2,3-di-F-Ph	*i*-Pr	1	F
2,4-di-F-Ph	*i*-Pr	1	H	2,4-di-F-Ph	*i*-Pr	1	F
2,5-di-F-Ph	*i*-Pr	1	H	2,5-di-F-Ph	*i*-Pr	1	F
2,6-di-F-Ph	*i*-Pr	1	H	2,6-di-F-Ph	*i*-Pr	1	F
3,4-di-F-Ph	*i*-Pr	1	H	3,4-di-F-Ph	*i*-Pr	1	F
3,5-di-F-Ph	*i*-Pr	1	H	3,5-di-F-Ph	*i*-Pr	1	F
2,3-di-Cl-Ph	*i*-Pr	1	H	2,3-di-Cl-Ph	*i*-Pr	1	F
2,4-di-Cl-Ph	*i*-Pr	1	H	2,4-di-Cl-Ph	*i*-Pr	1	F
2,5-di-Cl-Ph	*i*-Pr	1	H	2,5-di-Cl-Ph	*i*-Pr	1	F
2,6-di-Cl-Ph	*i*-Pr	1	H	2,6-di-Cl-Ph	*i*-Pr	1	F
3,4-di-Cl-Ph	*i*-Pr	1	H	3,4-di-Cl-Ph	*i*-Pr	1	F
3,5-di-Cl-Ph	*i*-Pr	1	H	3,5-di-Cl-Ph	*i*-Pr	1	F

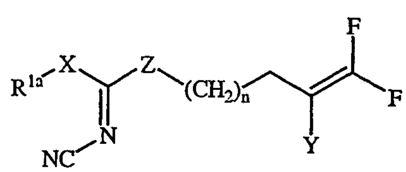
J^1	A	n	Y	J^1	A	n	Y
2,4,6-tri-F-Ph	*i*-Pr	1	H	2,4,6-tri-F-Ph	*i*-Pr	1	F
2,4,6-tri-Cl-Ph	*i*-Pr	1	H	2,4,6-tri-Cl-Ph	*i*-Pr	1	F
2-F-4-CF_3-6-F-Ph	*i*-Pr	1	H	2-F-4-CF_3-6-F-Ph	*i*-Pr	1	F
2-Cl-4-CF_3-6-Cl-Ph	*i*-Pr	1	H	2-Cl-4-CF_3-6-Cl-Ph	*i*-Pr	1	F
2-pyridinyl	*i*-Pr	1	H	2-pyridinyl	*i*-Pr	1	F
3-pyridinyl	*i*-Pr	1	H	3-pyridinyl	*i*-Pr	1	F
4-pyridinyl	*i*-Pr	1	H	4-pyridinyl	*i*-Pr	1	F
Ph	*i*-Pr	3	H	Ph	*i*-Pr	3	F
2-Cl-Ph	*i*-Pr	3	H	2-Cl-Ph	*i*-Pr	3	F
2-F-Ph	*i*-Pr	3	H	2-F-Ph	*i*-Pr	3	F
2-Me-Ph	*i*-Pr	3	H	2-Me-Ph	*i*-Pr	3	F
2-OMe-Ph	*i*-Pr	3	H	2-OMe-Ph	*i*-Pr	3	F
2-SMe-Ph	*i*-Pr	3	H	2-SMe-Ph	*i*-Pr	3	F
2-CF_3-Ph	*i*-Pr	3	H	2-CF_3-Ph	*i*-Pr	3	F
2-CN-Ph	*i*-Pr	3	H	2-CN-Ph	*i*-Pr	3	F
2-NO_2-Ph	*i*-Pr	3	H	2-NO_2-Ph	*i*-Pr	3	F
3-Cl-Ph	*i*-Pr	3	H	3-Cl-Ph	*i*-Pr	3	F
3-F-Ph	*i*-Pr	3	H	3-F-Ph	*i*-Pr	3	F
3-Me-Ph	*i*-Pr	3	H	3-Me-Ph	*i*-Pr	3	F
3-OMe-Ph	*i*-Pr	3	H	3-OMe-Ph	*i*-Pr	3	F
3-SMe-Ph	*i*-Pr	3	H	3-SMe-Ph	*i*-Pr	3	F
3-CF_3-Ph	*i*-Pr	3	H	3-CF_3-Ph	*i*-Pr	3	F
3-CN-Ph	*i*-Pr	3	H	3-CN-Ph	*i*-Pr	3	F
3-NO_2-Ph	*i*-Pr	3	H	3-NO_2-Ph	*i*-Pr	3	F
4-Cl-Ph	*i*-Pr	3	H	4-Cl-Ph	*i*-Pr	3	F
4-F-Ph	*i*-Pr	3	H	4-F-Ph	*i*-Pr	3	F
4-Me-Ph	*i*-Pr	3	H	4-Me-Ph	*i*-Pr	3	F
4-OMe-Ph	*i*-Pr	3	H	4-OMe-Ph	*i*-Pr	3	F
4-SMe-Ph	*i*-Pr	3	H	4-SMe-Ph	*i*-Pr	3	F
4-CF_3-Ph	*i*-Pr	3	H	4-CF_3-Ph	*i*-Pr	3	F
4-CN-Ph	*i*-Pr	3	H	4-CN-Ph	*i*-Pr	3	F
4-NO_2-Ph	*i*-Pr	3	H	4-NO_2-Ph	*i*-Pr	3	F
2,3-di-F-Ph	*i*-Pr	3	H	2,3-di-F-Ph	*i*-Pr	3	F
2,4-di-F-Ph	*i*-Pr	3	H	2,4-di-F-Ph	*i*-Pr	3	F
2,5-di-F-Ph	*i*-Pr	3	H	2,5-di-F-Ph	*i*-Pr	3	F
2,6-di-F-Ph	*i*-Pr	3	H	2,6-di-F-Ph	*i*-Pr	3	F
3,4-di-F-Ph	*i*-Pr	3	H	3,4-di-F-Ph	*i*-Pr	3	F

J^1	A	n	Y	J^1	A	n	Y
3,5-di-F-Ph	*i*-Pr	3	H	3,5-di-F-Ph	*i*-Pr	3	F
2,3-di-Cl-Ph	*i*-Pr	3	H	2,3-di-Cl-Ph	*i*-Pr	3	F
2,4-di-Cl-Ph	*i*-Pr	3	H	2,4-di-Cl-Ph	*i*-Pr	3	F
2,5-di-Cl-Ph	*i*-Pr	3	H	2,5-di-Cl-Ph	*i*-Pr	3	F
2,6-di-Cl-Ph	*i*-Pr	3	H	2,6-di-Cl-Ph	*i*-Pr	3	F
3,4-di-Cl-Ph	*i*-Pr	3	H	3,4-di-Cl-Ph	*i*-Pr	3	F
3,5-di-Cl-Ph	*i*-Pr	3	H	3,5-di-Cl-Ph	*i*-Pr	3	F
2,4,6-tri-F-Ph	*i*-Pr	3	H	2,4,6-tri-F-Ph	*i*-Pr	3	F
2,4,6-tri-Cl-Ph	*i*-Pr	3	H	2,4,6-tri-Cl-Ph	*i*-Pr	3	F
2-F-4-CF_3-6-F-Ph	*i*-Pr	3	H	2-F-4-CF_3-6-F-Ph	*i*-Pr	3	F
2-Cl-4-CF_3-6-Cl-Ph	*i*-Pr	3	H	2-Cl-4-CF_3-6-Cl-Ph	*i*-Pr	3	F
2-pyridinyl	*i*-Pr	3	H	2-pyridinyl	*i*-Pr	3	F
3-pyridinyl	*i*-Pr	3	H	3-pyridinyl	*i*-Pr	3	F
4-pyridinyl	*i*-Pr	3	H	4-pyridinyl	*i*-Pr	3	F
Ph	HNCN	1	H	Ph	HNCN	1	F
2-Cl-Ph	HNCN	1	H	2-Cl-Ph	HNCN	1	F
2-F-Ph	HNCN	1	H	2-F-Ph	HNCN	1	F
2-Me-Ph	HNCN	1	H	2-Me-Ph	HNCN	1	F
2-OMe-Ph	HNCN	1	H	2-OMe-Ph	HNCN	1	F
2-SMe-Ph	HNCN	1	H	2-SMe-Ph	HNCN	1	F
2-CF_3-Ph	HNCN	1	H	2-CF_3-Ph	HNCN	1	F
2-CN-Ph	HNCN	1	H	2-CN-Ph	HNCN	1	F
2-NO_2-Ph	HNCN	1	H	2-NO_2-Ph	HNCN	1	F
3-Cl-Ph	HNCN	1	H	3-Cl-Ph	HNCN	1	F
3-F-Ph	HNCN	1	H	3-F-Ph	HNCN	1	F
3-Me-Ph	HNCN	1	H	3-Me-Ph	HNCN	1	F
3-OMe-Ph	HNCN	1	H	3-OMe-Ph	HNCN	1	F
3-SMe-Ph	HNCN	1	H	3-SMe-Ph	HNCN	1	F
3-CF_3-Ph	HNCN	1	H	3-CF_3-Ph	HNCN	1	F
3-CN-Ph	HNCN	1	H	3-CN-Ph	HNCN	1	F
3-NO_2-Ph	HNCN	1	H	3-NO_2-Ph	HNCN	1	F
4-Cl-Ph	HNCN	1	H	4-Cl-Ph	HNCN	1	F
4-F-Ph	HNCN	1	H	4-F-Ph	HNCN	1	F
4-Me-Ph	HNCN	1	H	4-Me-Ph	HNCN	1	F
4-OMe-Ph	HNCN	1	H	4-OMe-Ph	HNCN	1	F
4-SMe-Ph	HNCN	1	H	4-SMe-Ph	HNCN	1	F
4-CF_3-Ph	HNCN	1	H	4-CF_3-Ph	HNCN	1	F

J^1	A	n	Y	J^1	A	n	Y
4-CN-Ph	HNCN	1	H	4-CN-Ph	HNCN	1	F
4-NO_2-Ph	HNCN	1	H	4-NO_2-Ph	HNCN	1	F
2,3-di-F-Ph	HNCN	1	H	2,3-di-F-Ph	HNCN	1	F
2,4-di-F-Ph	HNCN	1	H	2,4-di-F-Ph	HNCN	1	F
2,5-di-F-Ph	HNCN	1	H	2,5-di-F-Ph	HNCN	1	F
2,6-di-F-Ph	HNCN	1	H	2,6-di-F-Ph	HNCN	1	F
3,4-di-F-Ph	HNCN	1	H	3,4-di-F-Ph	HNCN	1	F
3,5-di-F-Ph	HNCN	1	H	3,5-di-F-Ph	HNCN	1	F
2,3-di-Cl-Ph	HNCN	1	H	2,3-di-Cl-Ph	HNCN	1	F
2,4-di-Cl-Ph	HNCN	1	H	2,4-di-Cl-Ph	HNCN	1	F
2,5-di-Cl-Ph	HNCN	1	H	2,5-di-Cl-Ph	HNCN	1	F
2,6-di-Cl-Ph	HNCN	1	H	2,6-di-Cl-Ph	HNCN	1	F
3,4-di-Cl-Ph	HNCN	1	H	3,4-di-Cl-Ph	HNCN	1	F
3,5-di-Cl-Ph	HNCN	1	H	3,5-di-Cl-Ph	HNCN	1	F
2,4,6-tri-F-Ph	HNCN	1	H	2,4,6-tri-F-Ph	HNCN	1	F
2,4,6-tri-Cl-Ph	HNCN	1	H	2,4,6-tri-Cl-Ph	HNCN	1	F
2-F-4-CF_3-6-F-Ph	HNCN	1	H	2-F-4-CF_3-6-F-Ph	HNCN	1	F
2-Cl-4-CF_3-6-Cl-Ph	HNCN	1	H	2-Cl-4-CF_3-6-Cl-Ph	HNCN	1	F
2-pyridinyl	HNCN	1	H	2-pyridinyl	HNCN	1	F
3-pyridinyl	HNCN	1	H	3-pyridinyl	HNCN	1	F
4-pyridinyl	HNCN	1	H	4-pyridinyl	HNCN	1	F
Ph	HNCN	3	H	Ph	HNCN	3	F
2-Cl-Ph	HNCN	3	H	2-Cl-Ph	HNCN	3	F
2-F-Ph	HNCN	3	H	2-F-Ph	HNCN	3	F
2-Me-Ph	HNCN	3	H	2-Me-Ph	HNCN	3	F
2-OMe-Ph	HNCN	3	H	2-OMe-Ph	HNCN	3	F
2-SMe-Ph	HNCN	3	H	2-SMe-Ph	HNCN	3	F
2-CF_3-Ph	HNCN	3	H	2-CF_3-Ph	HNCN	3	F
2-CN-Ph	HNCN	3	H	2-CN-Ph	HNCN	3	F
2-NO_2-Ph	HNCN	3	H	2-NO_2-Ph	HNCN	3	F
3-Cl-Ph	HNCN	3	H	3-Cl-Ph	HNCN	3	F
3-F-Ph	HNCN	3	H	3-F-Ph	HNCN	3	F
3-Me-Ph	HNCN	3	H	3-Me-Ph	HNCN	3	F
3-OMe-Ph	HNCN	3	H	3-OMe-Ph	HNCN	3	F
3-SMe-Ph	HNCN	3	H	3-SMe-Ph	HNCN	3	F
3-CF_3-Ph	HNCN	3	H	3-CF_3-Ph	HNCN	3	F
3-CN-Ph	HNCN	3	H	3-CN-Ph	HNCN	3	F

J^1	A	n	Y	J^1	A	n	Y
3-NO_2-Ph	HNCN	3	H	3-NO_2-Ph	HNCN	3	F
4-Cl-Ph	HNCN	3	H	4-Cl-Ph	HNCN	3	F
4-F-Ph	HNCN	3	H	4-F-Ph	HNCN	3	F
4-Me-Ph	HNCN	3	H	4-Me-Ph	HNCN	3	F
4-OMe-Ph	HNCN	3	H	4-OMe-Ph	HNCN	3	F
4-SMe-Ph	HNCN	3	H	4-SMe-Ph	HNCN	3	F
4-CF_3-Ph	HNCN	3	H	4-CF_3-Ph	HNCN	3	F
4-CN-Ph	HNCN	3	H	4-CN-Ph	HNCN	3	F
4-NO_2-Ph	HNCN	3	H	4-NO_2-Ph	HNCN	3	F
2,3-di-F-Ph	HNCN	3	H	2,3-di-F-Ph	HNCN	3	F
2,4-di-F-Ph	HNCN	3	H	2,4-di-F-Ph	HNCN	3	F
2,5-di-F-Ph	HNCN	3	H	2,5-di-F-Ph	HNCN	3	F
2,6-di-F-Ph	HNCN	3	H	2,6-di-F-Ph	HNCN	3	F
3,4-di-F-Ph	HNCN	3	H	3,4-di-F-Ph	HNCN	3	F
3,5-di-F-Ph	HNCN	3	H	3,5-di-F-Ph	HNCN	3	F
2,3-di-Cl-Ph	HNCN	3	H	2,3-di-Cl-Ph	HNCN	3	F
2,4-di-Cl-Ph	HNCN	3	H	2,4-di-Cl-Ph	HNCN	3	F
2,5-di-Cl-Ph	HNCN	3	H	2,5-di-Cl-Ph	HNCN	3	F
2,6-di-Cl-Ph	HNCN	3	H	2,6-di-Cl-Ph	HNCN	3	F
3,4-di-Cl-Ph	HNCN	3	H	3,4-di-Cl-Ph	HNCN	3	F
3,5-di-Cl-Ph	HNCN	3	H	3,5-di-Cl-Ph	HNCN	3	F
2,4,6-tri-F-Ph	HNCN	3	H	2,4,6-tri-F-Ph	HNCN	3	F
2,4,6-tri-Cl-Ph	HNCN	3	H	2,4,6-tri-Cl-Ph	HNCN	3	F
2-F-4-CF_3-6-F-Ph	HNCN	3	H	2-F-4-CF_3-6-F-Ph	HNCN	3	F
2-Cl-4-CF_3-6-Cl-Ph	HNCN	3	H	2-Cl-4-CF_3-6-Cl-Ph	HNCN	3	F
2-pyridinyl	HNCN	3	H	2-pyridinyl	HNCN	3	F
3-pyridinyl	HNCN	3	H	3-pyridinyl	HNCN	3	F
4-pyridinyl	HNCN	3	H	4-pyridinyl	HNCN	3	F

Table 8



R^{1a}	X	Z	n	Y
Me	NH	S	1	H
Et	NH	S	1	H
i-Pr	NH	S	1	H
n-Bu	NH	S	1	H
s-Bu	NH	S	1	H
t-Bu	NH	S	1	H
t-$BuCH_2$	NH	S	1	H
$PhCH_2$	NH	S	1	H
4-Cl-Ph	NH	S	1	H
4-F-$PhCH_2$	NH	S	1	H
CH_2CN	NH	S	1	H
CH_2CO_2Et	NH	S	1	H
CH_2CH_2OMe	NH	S	1	H
CH_2CH_2SMe	NH	S	1	H
CH_2CH_2Cl	NH	S	1	H
CH_2CF_3	NH	S	1	H
$CH_2CH_2CH_2F$	NH	S	1	H
$CH_2CH_2NMe_2$	NH	S	1	H
$CH_2CH_2CF_3$	NH	S	1	H
CH_2CO_2Me	NH	S	1	H
c-Pr	NH	S	1	H
c-Bu	NH	S	1	H
c-Hex	NH	S	1	H
Allyl	NH	S	1	H
Propargyl	NH	S	1	H
CH_2-*c*-Pr	NH	S	1	H
CH_2CH_2NH-*c*-Pr	NH	S	1	H
$CH_2CH_2SO_2Me$	NH	S	1	H
CH_2CH_2SOMe	NH	S	1	H
Me	NH	S	3	H
Et	NH	S	3	H
i-Pr	NH	S	3	H
n-Bu	NH	S	3	H
s-Bu	NH	S	3	H
t-Bu	NH	S	3	H
t-$BuCH_2$	NH	S	3	H
$PhCH_2$	NH	S	3	H

R^{1a}	X	Z	n	Y
Me	NH	S	1	F
Et	NH	S	1	F
i-Pr	NH	S	1	F
n-Bu	NH	S	1	F
s-Bu	NH	S	1	F
t-Bu	NH	S	1	F
t-$BuCH_2$	NH	S	1	F
$PhCH_2$	NH	S	1	F
4-Cl-Ph	NH	S	1	F
4-F-$PhCH_2$	NH	S	1	F
CH_2CN	NH	S	1	F
CH_2CO_2Et	NH	S	1	F
CH_2CH_2OMe	NH	S	1	F
CH_2CH_2SMe	NH	S	1	F
CH_2CH_2Cl	NH	S	1	F
CH_2CF_3	NH	S	1	F
$CH_2CH_2CH_2F$	NH	S	1	F
$CH_2CH_2NMe_2$	NH	S	1	F
$CH_2CH_2CF_3$	NH	S	1	F
CH_2CO_2Me	NH	S	1	F
c-Pr	NH	S	1	F
c-Bu	NH	S	1	F
c-Hex	NH	S	1	F
Allyl	NH	S	1	F
Propargyl	NH	S	1	F
CH_2-*c*-Pr	NH	S	1	F
CH_2CH_2NH-*c*-Pr	NH	S	1	F
$CH_2CH_2SO_2Me$	NH	S	1	F
CH_2CH_2SOMe	NH	S	1	F
Me	NH	S	3	F
Et	NH	S	3	F
i-Pr	NH	S	3	F
n-Bu	NH	S	3	F
s-Bu	NH	S	3	F
t-Bu	NH	S	3	F
t-$BuCH_2$	NH	S	3	F
$PhCH_2$	NH	S	3	F

R^{1a}	X	Z	n	Y
4-Cl-Ph	NH	S	3	H
4-F-PhCH$_2$	NH	S	3	H
CH$_2$CN	NH	S	3	H
CH$_2$CO$_2$Et	NH	S	3	H
CH$_2$CH$_2$OMe	NH	S	3	H
CH$_2$CH$_2$SMe	NH	S	3	H
CH$_2$CH$_2$Cl	NH	S	3	H
CH$_2$CF$_3$	NH	S	3	H
CH$_2$CH$_2$CH$_2$F	NH	S	3	H
CH$_2$CH$_2$NMe$_2$	NH	S	3	H
CH$_2$CH$_2$CF$_3$	NH	S	3	H
CH$_2$CO$_2$Me	NH	S	3	H
c-Pr	NH	S	3	H
c-Bu	NH	S	3	H
c-Hex	NH	S	3	H
Allyl	NH	S	3	H
Propargyl	NH	S	3	H
CH$_2$-*c*-Pr	NH	S	3	H
CH$_2$CH$_2$NH-*c*-Pr	NH	S	3	H
CH$_2$CH$_2$SO$_2$Me	NH	S	3	H
CH$_2$CH$_2$SOMe	NH	S	3	H
Me	S	O	1	H
Et	S	O	1	H
i-Pr	S	O	1	H
n-Bu	S	O	1	H
s-Bu	S	O	1	H
t-Bu	S	O	1	H
t-BuCH$_2$	S	O	1	H
PhCH$_2$	S	O	1	H
4-Cl-Ph	S	O	1	H
4-F-PhCH$_2$	S	O	1	H
CH$_2$CN	S	O	1	H
CH$_2$CO$_2$Et	S	O	1	H
CH$_2$CH$_2$OMe	S	O	1	H
CH$_2$CH$_2$SMe	S	O	1	H
CH$_2$CH$_2$Cl	S	O	1	H
CH$_2$CF$_3$	S	O	1	H
4-Cl-Ph	NH	S	3	F
4-F-PhCH$_2$	NH	S	3	F
CH$_2$CN	NH	S	3	F
CH$_2$CO$_2$Et	NH	S	3	F
CH$_2$CH$_2$OMe	NH	S	3	F
CH$_2$CH$_2$SMe	NH	S	3	F
CH$_2$CH$_2$Cl	NH	S	3	F
CH$_2$CF$_3$	NH	S	3	F
CH$_2$CH$_2$CH$_2$F	NH	S	3	F
CH$_2$CH$_2$NMe$_2$	NH	S	3	F
CH$_2$CH$_2$CF$_3$	NH	S	3	F
CH$_2$CO$_2$Me	NH	S	3	F
c-Pr	NH	S	3	F
c-Bu	NH	S	3	F
c-Hex	NH	S	3	F
Allyl	NH	S	3	F
Propargyl	NH	S	3	F
CH$_2$-*c*-Pr	NH	S	3	F
CH$_2$CH$_2$NH-*c*-Pr	NH	S	3	F
CH$_2$CH$_2$SO$_2$Me	NH	S	3	F
CH$_2$CH$_2$SOMe	NH	S	3	F
Me	S	O	1	F
Et	S	O	1	F
i-Pr	S	O	1	F
n-Bu	S	O	1	F
s-Bu	S	O	1	F
t-Bu	S	O	1	F
t-BuCH$_2$	S	O	1	F
PhCH$_2$	S	O	1	F
4-Cl-Ph	S	O	1	F
4-F-PhCH$_2$	S	O	1	F
CH$_2$CN	S	O	1	F
CH$_2$CO$_2$Et	S	O	1	F
CH$_2$CH$_2$OMe	S	O	1	F
CH$_2$CH$_2$SMe	S	O	1	F
CH$_2$CH$_2$Cl	S	O	1	F
CH$_2$CF$_3$	S	O	1	F

R^{1a}	X	Z	n	Y	R^{1a}	X	Z	n	Y
$CH_2CH_2CH_2F$	S	O	1	H	$CH_2CH_2CH_2F$	S	O	1	F
$CH_2CH_2NMe_2$	S	O	1	H	$CH_2CH_2NMe_2$	S	O	1	F
$CH_2CH_2CF_3$	S	O	1	H	$CH_2CH_2CF_3$	S	O	1	F
CH_2CO_2Me	S	O	1	H	CH_2CO_2Me	S	O	1	F
c-Pr	S	O	1	H	*c*-Pr	S	O	1	F
c-Bu	S	O	1	H	*c*-Bu	S	O	1	F
c-Hex	S	O	1	H	*c*-Hex	S	O	1	F
Allyl	S	O	1	H	Allyl	S	O	1	F
Propargyl	S	O	1	H	Propargyl	S	O	1	F
CH_2-*c*-Pr	S	O	1	H	CH_2-*c*-Pr	S	O	1	F
CH_2CH_2NH-*c*-Pr	S	O	1	H	CH_2CH_2NH-*c*-Pr	S	O	1	F
$CH_2CH_2SO_2Me$	S	O	1	H	$CH_2CH_2SO_2Me$	S	O	1	F
CH_2CH_2SOMe	S	O	1	H	CH_2CH_2SOMe	S	O	1	F
Me	S	O	3	H	Me	S	O	3	F
Et	S	O	3	H	Et	S	O	3	F
i-Pr	S	O	3	H	*i*-Pr	S	O	3	F
n-Bu	S	O	3	H	*n*-Bu	S	O	3	F
s-Bu	S	O	3	H	*s*-Bu	S	O	3	F
t-Bu	S	O	3	H	*t*-Bu	S	O	3	F
t-$BuCH_2$	S	O	3	H	*t*-$BuCH_2$	S	O	3	F
$PhCH_2$	S	O	3	H	$PhCH_2$	S	O	3	F
4-Cl-Ph	S	O	3	H	4-Cl-Ph	S	O	3	F
4-F-$PhCH_2$	S	O	3	H	4-F-$PhCH_2$	S	O	3	F
CH_2CN	S	O	3	H	CH_2CN	S	O	3	F
CH_2CO_2Et	S	O	3	H	CH_2CO_2Et	S	O	3	F
CH_2CH_2OMe	S	O	3	H	CH_2CH_2OMe	S	O	3	F
CH_2CH_2SMe	S	O	3	H	CH_2CH_2SMe	S	O	3	F
CH_2CH_2Cl	S	O	3	H	CH_2CH_2Cl	S	O	3	F
CH_2CF_3	S	O	3	H	CH_2CF_3	S	O	3	F
$CH_2CH_2CH_2F$	S	O	3	H	$CH_2CH_2CH_2F$	S	O	3	F
$CH_2CH_2NMe_2$	S	O	3	H	$CH_2CH_2NMe_2$	S	O	3	F
$CH_2CH_2CF_3$	S	O	3	H	$CH_2CH_2CF_3$	S	O	3	F
CH_2CO_2Me	S	O	3	H	CH_2CO_2Me	S	O	3	F
c-Pr	S	O	3	H	*c*-Pr	S	O	3	F
c-Bu	S	O	3	H	*c*-Bu	S	O	3	F
c-Hex	S	O	3	H	*c*-Hex	S	O	3	F
Allyl	S	O	3	H	Allyl	S	O	3	F

R^{1a}	X	Z	n	Y
Propargyl	S	O	3	H
CH_2-*c*-Pr	S	O	3	H
CH_2CH_2NH-*c*-Pr	S	O	3	H
$CH_2CH_2SO_2Me$	S	O	3	H
CH_2CH_2SOMe	S	O	3	H
Me	O	NH	1	H
Et	O	NH	1	H
i-Pr	O	NH	1	H
n-Bu	O	NH	1	H
s-Bu	O	NH	1	H
t-Bu	O	NH	1	H
t-$BuCH_2$	O	NH	1	H
$PhCH_2$	O	NH	1	H
4-Cl-Ph	O	NH	1	H
4-F-$PhCH_2$	O	NH	1	H
CH_2CN	O	NH	1	H
CH_2CO_2Et	O	NH	1	H
CH_2CH_2OMe	O	NH	1	H
CH_2CH_2SMe	O	NH	1	H
CH_2CH_2Cl	O	NH	1	H
CH_2CF_3	O	NH	1	H
$CH_2CH_2CH_2F$	O	NH	1	H
$CH_2CH_2NMe_2$	O	NH	1	H
$CH_2CH_2CF_3$	O	NH	1	H
CH_2CO_2Me	O	NH	1	H
c-Pr	O	NH	1	H
c-Bu	O	NH	1	H
c-Hex	O	NH	1	H
Allyl	O	NH	1	H
Propargyl	O	NH	1	H
CH_2-*c*-Pr	O	NH	1	H
CH_2CH_2NH-*c*-Pr	O	NH	1	H
$CH_2CH_2SO_2Me$	O	NH	1	H
CH_2CH_2SOMe	O	NH	1	H
Me	O	NH	3	H
Et	O	NH	3	H
i-Pr	O	NH	3	H

R^{1a}	X	Z	n	Y
Propargyl	S	O	3	F
CH_2-*c*-Pr	S	O	3	F
CH_2CH_2NH-*c*-Pr	S	O	3	F
$CH_2CH_2SO_2Me$	S	O	3	F
CH_2CH_2SOMe	S	O	3	F
Me	O	NH	1	F
Et	O	NH	1	F
i-Pr	O	NH	1	F
n-Bu	O	NH	1	F
s-Bu	O	NH	1	F
t-Bu	O	NH	1	F
t-$BuCH_2$	O	NH	1	F
$PhCH_2$	O	NH	1	F
4-Cl-Ph	O	NH	1	F
4-F-$PhCH_2$	O	NH	1	F
CH_2CN	O	NH	1	F
CH_2CO_2Et	O	NH	1	F
CH_2CH_2OMe	O	NH	1	F
CH_2CH_2SMe	O	NH	1	F
CH_2CH_2Cl	O	NH	1	F
CH_2CF_3	O	NH	1	F
$CH_2CH_2CH_2F$	O	NH	1	F
$CH_2CH_2NMe_2$	O	NH	1	F
$CH_2CH_2CF_3$	O	NH	1	F
CH_2CO_2Me	O	NH	1	F
c-Pr	O	NH	1	F
c-Bu	O	NH	1	F
c-Hex	O	NH	1	F
Allyl	O	NH	1	F
Propargyl	O	NH	1	F
CH_2-*c*-Pr	O	NH	1	F
CH_2CH_2NH-*c*-Pr	O	NH	1	F
$CH_2CH_2SO_2Me$	O	NH	1	F
CH_2CH_2SOMe	O	NH	1	F
Me	O	NH	3	F
Et	O	NH	3	F
i-Pr	O	NH	3	F

R^{1a}	X	Z	n	Y	R^{1a}	X	Z	n	Y
n-Bu	O	NH	3	H	*n*-Bu	O	NH	3	F
s-Bu	O	NH	3	H	*s*-Bu	O	NH	3	F
t-Bu	O	NH	3	H	*t*-Bu	O	NH	3	F
t-$BuCH_2$	O	NH	3	H	*t*-$BuCH_2$	O	NH	3	F
$PhCH_2$	O	NH	3	H	$PhCH_2$	O	NH	3	F
4-Cl-Ph	O	NH	3	H	4-Cl-Ph	O	NH	3	F
4-F-$PhCH_2$	O	NH	3	H	4-F-$PhCH_2$	O	NH	3	F
CH_2CN	O	NH	3	H	CH_2CN	O	NH	3	F
CH_2CO_2Et	O	NH	3	H	CH_2CO_2Et	O	NH	3	F
CH_2CH_2OMe	O	NH	3	H	CH_2CH_2OMe	O	NH	3	F
CH_2CH_2SMe	O	NH	3	H	CH_2CH_2SMe	O	NH	3	F
CH_2CH_2Cl	O	NH	3	H	CH_2CH_2Cl	O	NH	3	F
CH_2CF_3	O	NH	3	H	CH_2CF_3	O	NH	3	F
$CH_2CH_2CH_2F$	O	NH	3	H	$CH_2CH_2CH_2F$	O	NH	3	F
$CH_2CH_2NMe_2$	O	NH	3	H	$CH_2CH_2NMe_2$	O	NH	3	F
$CH_2CH_2CF_3$	O	NH	3	H	$CH_2CH_2CF_3$	O	NH	3	F
CH_2CO_2Me	O	NH	3	H	CH_2CO_2Me	O	NH	3	F
c-Pr	O	NH	3	H	*c*-Pr	O	NH	3	F
c-Bu	O	NH	3	H	*c*-Bu	O	NH	3	F
c-Hex	O	NH	3	H	*c*-Hex	O	NH	3	F
Allyl	O	NH	3	H	Allyl	O	NH	3	F
Propargyl	O	NH	3	H	Propargyl	O	NH	3	F
CH_2-*c*-Pr	O	NH	3	H	CH_2-*c*-Pr	O	NH	3	F
CH_2CH_2NH-*c*-Pr	O	NH	3	H	CH_2CH_2NH-*c*-Pr	O	NH	3	F
$CH_2CH_2SO_2Me$	O	NH	3	H	$CH_2CH_2SO_2Me$	O	NH	3	F
CH_2CH_2SOMe	O	NH	3	H	CH_2CH_2SOMe	O	NH	3	F
Me	S	NH	1	H	Me	S	NH	1	F
Et	S	NH	1	H	Et	S	NH	1	F
i-Pr	S	NH	1	H	*i*-Pr	S	NH	1	F
n-Bu	S	NH	1	H	*n*-Bu	S	NH	1	F
s-Bu	S	NH	1	H	*s*-Bu	S	NH	1	F
t-Bu	S	NH	1	H	*t*-Bu	S	NH	1	F
t-$BuCH_2$	S	NH	1	H	*t*-$BuCH_2$	S	NH	1	F
$PhCH_2$	S	NH	1	H	$PhCH_2$	S	NH	1	F
4-Cl-Ph	S	NH	1	H	4-Cl-Ph	S	NH	1	F
4-F-$PhCH_2$	S	NH	1	H	4-F-$PhCH_2$	S	NH	1	F
CH_2CN	S	NH	1	H	CH_2CN	S	NH	1	F

R^{1a}	X	Z	n	Y	R^{1a}	X	Z	n	Y
CH_2CO_2Et	S	NH	1	H	CH_2CO_2Et	S	NH	1	F
CH_2CH_2OMe	S	NH	1	H	CH_2CH_2OMe	S	NH	1	F
CH_2CH_2SMe	S	NH	1	H	CH_2CH_2SMe	S	NH	1	F
CH_2CH_2Cl	S	NH	1	H	CH_2CH_2Cl	S	NH	1	F
CH_2CF_3	S	NH	1	H	CH_2CF_3	S	NH	1	F
$CH_2CH_2CH_2F$	S	NH	1	H	$CH_2CH_2CH_2F$	S	NH	1	F
$CH_2CH_2NMe_2$	S	NH	1	H	$CH_2CH_2NMe_2$	S	NH	1	F
$CH_2CH_2CF_3$	S	NH	1	H	$CH_2CH_2CF_3$	S	NH	1	F
CH_2CO_2Me	S	NH	1	H	CH_2CO_2Me	S	NH	1	F
c-Pr	S	NH	1	H	*c*-Pr	S	NH	1	F
c-Bu	S	NH	1	H	*c*-Bu	S	NH	1	F
c-Hex	S	NH	1	H	*c*-Hex	S	NH	1	F
Allyl	S	NH	1	H	Allyl	S	NH	1	F
Propargyl	S	NH	1	H	Propargyl	S	NH	1	F
CH_2-*c*-Pr	S	NH	1	H	CH_2-*c*-Pr	S	NH	1	F
CH_2CH_2NH-*c*-Pr	S	NH	1	H	CH_2CH_2NH-*c*-Pr	S	NH	1	F
$CH_2CH_2SO_2Me$	S	NH	1	H	$CH_2CH_2SO_2Me$	S	NH	1	F
CH_2CH_2SOMe	S	NH	1	H	CH_2CH_2SOMe	S	NH	1	F
Me	S	NH	3	H	Me	S	NH	3	F
Et	S	NH	3	H	Et	S	NH	3	F
i-Pr	S	NH	3	H	*i*-Pr	S	NH	3	F
n-Bu	S	NH	3	H	*n*-Bu	S	NH	3	F
s-Bu	S	NH	3	H	*s*-Bu	S	NH	3	F
t-Bu	S	NH	3	H	*t*-Bu	S	NH	3	F
t-$BuCH_2$	S	NH	3	H	*t*-$BuCH_2$	S	NH	3	F
$PhCH_2$	S	NH	3	H	$PhCH_2$	S	NH	3	F
4-Cl-Ph	S	NH	3	H	4-Cl-Ph	S	NH	3	F
4-F-$PhCH_2$	S	NH	3	H	4-F-$PhCH_2$	S	NH	3	F
CH_2CN	S	NH	3	H	CH_2CN	S	NH	3	F
CH_2CO_2Et	S	NH	3	H	CH_2CO_2Et	S	NH	3	F
CH_2CH_2OMe	S	NH	3	H	CH_2CH_2OMe	S	NH	3	F
CH_2CH_2SMe	S	NH	3	H	CH_2CH_2SMe	S	NH	3	F
CH_2CH_2Cl	S	NH	3	H	CH_2CH_2Cl	S	NH	3	F
CH_2CF_3	S	NH	3	H	CH_2CF_3	S	NH	3	F
$CH_2CH_2CH_2F$	S	NH	3	H	$CH_2CH_2CH_2F$	S	NH	3	F
$CH_2CH_2NMe_2$	S	NH	3	H	$CH_2CH_2NMe_2$	S	NH	3	F
$CH_2CH_2CF_3$	S	NH	3	H	$CH_2CH_2CF_3$	S	NH	3	F

R^{1a}	X	Z	n	Y	R^{1a}	X	Z	n	Y
CH_2CO_2Me	S	NH	3	H	CH_2CO_2Me	S	NH	3	F
c-Pr	S	NH	3	H	*c*-Pr	S	NH	3	F
c-Bu	S	NH	3	H	*c*-Bu	S	NH	3	F
c-Hex	S	NH	3	H	*c*-Hex	S	NH	3	F
Allyl	S	NH	3	H	Allyl	S	NH	3	F
Propargyl	S	NH	3	H	Propargyl	S	NH	3	F
CH_2-*c*-Pr	S	NH	3	H	CH_2-*c*-Pr	S	NH	3	F
CH_2CH_2NH-*c*-Pr	S	NH	3	H	CH_2CH_2NH-*c*-Pr	S	NH	3	F
$CH_2CH_2SO_2Me$	S	NH	3	H	$CH_2CH_2SO_2Me$	S	NH	3	F
CH_2CH_2SOMe	S	NH	3	H	CH_2CH_2SOMe	S	NH	3	F

Formulation/Utility

Compounds of this invention will generally be used as a formulation or composition with a carrier suitable for agronomic or nonagronomic uses comprising at least one of a liquid diluent, a solid diluent or a surfactant. The formulation or composition ingredients are selected to be consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature. Useful formulations include liquids such as solutions (including emulsifiable concentrates), suspensions, emulsions (including microemulsions and/or suspoemulsions) and the like which optionally can be thickened into gels. Useful formulations further include solids such as dusts, powders, granules, pellets, tablets, films (including seed treatment), and the like which can be water-dispersible ("wettable") or water-soluble. Active ingredient can be (micro)encapsulated and further formed into a suspension or solid formulation; alternatively the entire formulation of active ingredient can be encapsulated (or "overcoated"). Encapsulation can control or delay release of the active ingredient. Sprayable formulations can be extended in suitable media and used at spray volumes from about one to several hundred liters per hectare. High-strength compositions are primarily used as intermediates for further formulation.

The formulations will typically contain effective amounts of active ingredient, diluent and surfactant within the following approximate ranges which add up to 100 percent by weight.

	Weight Percent		
	Active Ingredient	Diluent	Surfactant
Water-Dispersible and Water-soluble Granules, Tablets and Powders.	.001–90	0–99.999	0–15
Suspensions, Emulsions, Solutions (including Emulsifiable Concentrates)	1–50	40–99	0–50
Dusts	1–25	70–99	0–5
Granules and Pellets	0.001–99	5–99.999	0–15
High Strength Compositions	90–99	0–10	0–2

Typical solid diluents are described in Watkins, et al., *Handbook of Insecticide Dust Diluents and Carriers*, 2nd Ed., Dorland Books, Caldwell, New Jersey. Typical liquid diluents are described in Marsden, *Solvents Guide*, 2nd Ed., Interscience, New York, 1950. *McCutcheon's Detergents and Emulsifiers Annual*, Allured Publ. Corp., Ridgewood, New Jersey, as well as Sisely and Wood, *Encyclopedia of Surface Active Agents*, Chemical Publ. Co., Inc., New York, 1964, list surfactants and recommended uses. All formulations can include minor amounts of additives to reduce foam, caking, corrosion, microbiological growth and the like, or thickeners to increase viscosity.

Surfactants include, for example, polyethoxylated alcohols, polyethoxylated alkylphenols, polyethoxylated sorbitan fatty acid esters, dialkyl sulfosuccinates, alkyl sulfates, alkylbenzene sulfonates, organosilicones, *N,N*-dialkyltaurates, lignin sulfonates, naphthalene sulfonate formaldehyde condensates, polycarboxylates, glycerol esters, polyoxyethylene/polyoxypropylene block copolymers, and alkylpolyglycosides where the number of glucose units, referred to as degree of polymerization (D.P.), can range from 1 to 3 and the alkyl units can range from C_6–C_{14} (see *Pure and Applied Chemistry 72*, 1255–1264). Solid diluents include, for example, clays such as bentonite, montmorillonite, attapulgite and kaolin, starch, sugar, silica, talc, diatomaceous earth, urea, calcium carbonate, sodium carbonate and bicarbonate, and sodium sulfate. Liquid diluents include, for example, water, *N,N*-dimethylformamide, dimethyl sulfoxide, *N*-alkylpyrrolidone, ethylene glycol, polypropylene glycol, paraffins, alkylbenzenes, alkylnaphthalenes, glycerine, triacetine, oils of olive, castor, linseed, tung, sesame, corn, peanut, cotton-seed, soybean, rape-seed and coconut, fatty acid esters, ketones such as cyclohexanone, 2-heptanone, isophorone and 4-hydroxy-4-methyl-2-pentanone, acetates and alcohols such as methanol, cyclohexanol, decanol and tetrahydrofurfuryl alcohol.

Useful formulations of this invention can also include materials known as formulation aids like antifoams, film formers and dyes and are well known to those skilled in the art.

Antifoams can include water dispersible liquids comprising polyorganosiloxanes like Rhodorsil® 416. The film formers can include polyvinyl acetates, polyvinyl acetate copolymers, polyvinylpyrrolidone-vinyl acetate copolymer, polyvinyl alcohols, polyvinyl alcohol copolymers and waxes. Dyes can include water dispersible liquid colorant compositions like Pro-Ized® Colorant Red. One skilled in the art will appreciate that this is a non-exhaustive list of formulation aids. Suitable examples of formulation aids include those listed herein and those listed in McCutcheon's 2001, Volume 2: Functional Materials, published by MC Publishing Company and PCT Publication WO 03/024222.

Solutions, including emulsifiable concentrates, can be prepared by simply mixing the ingredients. Dusts and powders can be prepared by blending and, usually, grinding as in a hammer mill or fluid-energy mill. Suspensions are usually prepared by wet-milling; see, for example, U.S. 3,060,084. Granules and pellets can be prepared by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning, "Agglomeration", *Chemical Engineering*, December 4, 1967, pp 147-48, *Perry's Chemical Engineer's Handbook*, 4th Ed., McGraw-Hill, New York, 1963, pages 8-57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714. Water-dispersible and water-soluble granules can be prepared as taught in U.S. 4,144,050, U.S. 3,920,442 and DE 3,246,493. Tablets can be prepared as taught in U.S. 5,180,587, U.S. 5,232,701 and U.S. 5,208,030. Films can be prepared as taught in GB 2,095,558 and U.S. 3,299,566.

For further information regarding the art of formulation, see U.S. 3,235,361, Col. 6, line 16 through Col. 7, line 19 and Examples 10-41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138-140, 162-164, 166, 167 and 169-182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1-4; Klingman, *Weed Control as a Science*, John Wiley and Sons, Inc., New York, 1961, pp 81-96; and Hance et al., *Weed Control Handbook*, 8th Ed., Blackwell Scientific Publications, Oxford, 1989; *Developments in formulation technology*, PJB Publications, Richmond, UK, 2000.

In the following Examples, all percentages are by weight and all formulations are prepared in conventional ways. Compound numbers refer to compounds in Index Tables A-J.

<u>Example A</u>

<u>Wettable Powder</u>

Compound A1	65.0%
dodecylphenol polyethylene glycol ether	2.0%
sodium ligninsulfonate	4.0%
sodium silicoaluminate	6.0%
montmorillonite (calcined)	23.0%.

Example B

Granule

Compound C5	10.0%
attapulgite granules (low volatile matter, 0.71/0.30 mm; U.S.S. No. 25–50 sieves)	90.0%.

Example C

Extruded Pellet

Compound D1	25.0%
anhydrous sodium sulfate	10.0%
crude calcium ligninsulfonate	5.0%
sodium alkylnaphthalenesulfonate	1.0%
calcium/magnesium bentonite	59.0%.

Example D

Emulsifiable Concentrate

Compound E10	20.0%
blend of oil soluble sulfonates and polyoxyethylene ethers	10.0%
isophorone	70.0%.

Example E

Microemulsion

Compound E41	5.0%
triacetine	30.0%
alkylpolyglycoside	30.0%
glyceryl monooleate	15.0%
water	20.0%

Example F

Seed Treatment

Compound G23	20.0%
polyvinylpyrrolidone-vinyl acetate copolymer	5.0%
montan acid wax	5.0%
calcium ligninsulfonate	1.0%
polyoxyethylene/polyoxypropylene block copolymers	1.0%
stearyl alcohol (POE 20)	2.0%
polyorganosilane	0.2%
colorant red dye	0.05%
water	65.75%

Compounds of this invention are characterized by favorable metabolic and/or soil residual patterns and exhibit activity controlling a spectrum of agronomic and non-agronomic invertebrate pests. (In the context of this disclosure "invertebrate pest control" means inhibition of invertebrate pest development (including mortality) that causes significant reduction in feeding or other injury or damage caused by the pest; related expressions are defined analogously.) As referred to in this disclosure, the term "invertebrate pest" includes arthropods, gastropods and nematodes of economic importance as pests. The term "arthropod" includes insects, mites, spiders, scorpions, centipedes, millipedes, pill bugs and symphylans. The term "gastropod" includes snails, slugs and other Stylommatophora. The term "nematode" includes all of the helminths, such as flatworms (Platyhelminthes), including tapeworms (Cestoda) and flukes (Trematoda); thorny-headed worms (Acanthocephala); and roundworms (Nematoda), including whipworms (Enoplida), free-living worms (Rhabdita), hookworms and lungworms (Strongylida), intestinal roundworms (Ascarida), pinworms (Oxyurida), filarial nematodes (Spirurida), and plant parasitic nematodes (Tylenchida and Dorylaimida). Those skilled in the art will recognize that not all compounds are equally effective against all pests. Compounds of this invention display activity against economically important agronomic and nonagronomic pests. The term "agronomic" refers to the production of field crops such as for food and fiber and includes the growth of cereal crops (e.g., wheat, oats, barley, rye, rice, maize), soybeans, vegetable crops (e.g., lettuce, cabbage, tomatoes, beans), potatoes, sweet potatoes, grapes, cotton, and tree fruits (e.g., pome fruits, stone fruits and citrus fruits). The term "nonagronomic" refers to other horticultural crops (e.g., forest, greenhouse, nursery or ornamental plants not grown in a field), turf (commercial, golf, residential, recreational, etc.), wood products, public health (human) and animal health, domestic and commercial structure, household, and stored product applications or pests. For reason of invertebrate pest control spectrum and economic importance, protection (from damage or injury caused by invertebrate pests) of agronomic crops of cotton, maize, soybeans, rice, vegetable crops, potato, sweet potato, grapes and tree fruit by controlling invertebrate pests are preferred embodiments of the invention. Agronomic or nonagronomic pests include larvae of the order Lepidoptera, such as armyworms, cutworms, loopers, and heliothines in the family Noctuidae (e.g., fall armyworm (*Spodoptera fugiperda* J. E. Smith), beet armyworm (*Spodoptera exigua* Hübner), black cutworm (*Agrotis ipsilon* Hufnagel), cabbage looper (*Trichoplusia ni* Hübner), tobacco budworm (*Heliothis virescens* Fabricius)); borers, casebearers, webworms, coneworms, cabbageworms and skeletonizers from the family Pyralidae (e.g., European corn borer (*Ostrinia nubilalis* Hübner), navel orangeworm (*Amyelois transitella* Walker), corn root webworm (*Crambus caliginosellus* Clemens), sod webworm (*Herpetogramma licarsisalis* Walker)); leafrollers, budworms, seed worms, and fruit worms in the family Tortricidae (e.g., codling moth (*Cydia pomonella* Linnaeus), grape

berry moth (*Endopiza viteana* Clemens), oriental fruit moth (*Grapholita molesta* Busck)); and many other economically important lepidoptera (e.g., diamondback moth (*Plutella xylostella* Linnaeus), pink bollworm (*Pectinophora gossypiella* Saunders), gypsy moth (*Lymantria dispar* Linnaeus)); nymphs and adults of the order Blattodea including cockroaches from the families Blattellidae and Blattidae (e.g., oriental cockroach (*Blatta orientalis* Linnaeus), Asian cockroach (*Blatella asahinai* Mizukubo), German cockroach (*Blattella germanica* Linnaeus), brownbanded cockroach (*Supella longipalpa* Fabricius), American cockroach (*Periplaneta americana* Linnaeus), brown cockroach (*Periplaneta brunnea* Burmeister), Madeira cockroach (*Leucophaea maderae* Fabricius)); foliar feeding larvae and adults of the order Coleoptera including weevils from the families Anthribidae, Bruchidae, and Curculionidae (e.g., boll weevil (*Anthonomus grandis* Boheman), rice water weevil (*Lissorhoptrus oryzophilus* Kuschel), granary weevil (*Sitophilus granarius* Linnaeus), rice weevil (*Sitophilus oryzae* Linnaeus)); flea beetles, cucumber beetles, rootworms, leaf beetles, potato beetles, and leafminers in the family Chrysomelidae (e.g., Colorado potato beetle (*Leptinotarsa decemlineata* Say), western corn rootworm (*Diabrotica virgifera virgifera* LeConte)); chafers and other beetles from the family Scaribaeidae (e.g., Japanese beetle (*Popillia japonica* Newman) and European chafer (*Rhizotrogus majalis* Razoumowsky)); carpet beetles from the family Dermestidae; wireworms from the family Elateridae; bark beetles from the family Scolytidae and flour beetles from the family Tenebrionidae. In addition, agronomic and nonagronomic pests include: adults and larvae of the order Dermaptera including earwigs from the family Forficulidae (e.g., European earwig (*Forficula auricularia* Linnaeus), black earwig (*Chelisoches morio* Fabricius)); adults and nymphs of the orders Hemiptera and Homoptera such as, plant bugs from the family Miridae, cicadas from the family Cicadidae, leafhoppers (e.g. *Empoasca* spp.) from the family Cicadellidae, planthoppers from the families Fulgoroidae and Delphacidae, treehoppers from the family Membracidae, psyllids from the family Psyllidae, whiteflies from the family Aleyrodidae, aphids from the family Aphididae, phylloxera from the family Phylloxeridae, mealybugs from the family Pseudococcidae, scales from the families Coccidae, Diaspididae and Margarodidae, lace bugs from the family Tingidae, stink bugs from the family Pentatomidae, cinch bugs (e.g., *Blissus* spp.) and other seed bugs from the family Lygaeidae, spittlebugs from the family Cercopidae squash bugs from the family Coreidae, and red bugs and cotton stainers from the family Pyrrhocoridae. Also included are adults and larvae of the order Acari (mites) such as spider mites and red mites in the family Tetranychidae (e.g., European red mite (*Panonychus ulmi* Koch), two spotted spider mite (*Tetranychus urticae* Koch), McDaniel mite (*Tetranychus mcdanieli* McGregor)), flat mites in the family Tenuipalpidae (e.g., citrus flat mite (*Brevipalpus lewisi* McGregor)), rust and bud mites in the family Eriophyidae and other foliar feeding mites and mites important in human and animal health, i.e. dust mites in the family Epidermoptidae, follicle mites in the

family Demodicidae, grain mites in the family Glycyphagidae, ticks in the order Ixodidae (e.g., deer tick (*Ixodes scapularis* Say), Australian paralysis tick (*Ixodes holocyclus* Neumann), American dog tick (*Dermacentor variabilis* Say), lone star tick (*Amblyomma americanum* Linnaeus) and scab and itch mites in the families Psoroptidae, Pyemotidae, and Sarcoptidae; adults and immatures of the order Orthoptera including grasshoppers, locusts and crickets (e.g., migratory grasshoppers (e.g., *Melanoplus sanguinipes* Fabricius, *M. differentialis* Thomas), American grasshoppers (e.g., *Schistocerca americana* Drury), desert locust (*Schistocerca gregaria* Forskal), migratory locust (*Locusta migratoria* Linnaeus), bush locust (*Zonocerus* spp.), house cricket (*Acheta domesticus* Linnaeus), mole crickets (*Gryllotalpa* spp.)); adults and immatures of the order Diptera including leafminers, midges, fruit flies (Tephritidae), frit flies (e.g., *Oscinella frit* Linnaeus), soil maggots, house flies (e.g., *Musca domestica* Linnaeus), lesser house flies (e.g., *Fannia canicularis* Linnaeus, *F. femoralis* Stein), stable flies (e.g., *Stomoxys calcitrans* Linnaeus), face flies, horn flies, blow flies (e.g., *Chrysomya* spp., *Phormia* spp.), and other muscoid fly pests, horse flies (e.g., *Tabanus* spp.), bot flies (e.g., *Gastrophilus* spp., *Oestrus* spp.), cattle grubs (e.g., *Hypoderma* spp.), deer flies (e.g., *Chrysops* spp.), keds (e.g., *Melophagus ovinus* Linnaeus) and other Brachycera, mosquitoes (e.g., *Aedes* spp., *Anopheles* spp., *Culex* spp.), black flies (e.g., *Prosimulium* spp., *Simulium* spp.), biting midges, sand flies, sciarids, and other Nematocera; adults and immatures of the order Thysanoptera including onion thrips (*Thrips tabaci* Lindeman), flower thrips (*Frankliniella* spp.), and other foliar feeding thrips; insect pests of the order Hymenoptera including ants (e.g., red carpenter ant (*Camponotus ferrugineus* Fabricius), black carpenter ant (*Camponotus pennsylvanicus* De Geer), Pharaoh ant (*Monomorium pharaonis* Linnaeus), little fire ant (*Wasmannia auropunctata* Roger), fire ant (*Solenopsis geminata* Fabricius), red imported fire ant (*Solenopsis invicta* Buren), Argentine ant (*Iridomyrmex humilis* Mayr), crazy ant (*Paratrechina longicornis* Latreille), pavement ant (*Tetramorium caespitum* Linnaeus), cornfield ant (*Lasius alienus* Förster), odorous house ant (*Tapinoma sessile* Say)), bees (including carpenter bees), hornets, yellow jackets, wasps, and sawflies (*Neodiprion* spp.; *Cephus* spp.); insect pests of the order Isoptera including the eastern subterranean termite (*Reticulitermes flavipes* Kollar), western subterranean termite (*Reticulitermes hesperus* Banks), Formosan subterranean termite (*Coptotermes formosanus* Shiraki), West Indian drywood termite (*Incisitermes immigrans* Snyder) and other termites of economic importance; insect pests of the order Thysanura such as silverfish (*Lepisma saccharina* Linnaeus) and firebrat (*Thermobia domestica* Packard); insect pests of the order Mallophaga and including the head louse (*Pediculus humanus capitis* De Geer), body louse (*Pediculus humanus humanus* Linnaeus), chicken body louse (*Menacanthus stramineus* Nitszch), dog biting louse (*Trichodectes canis* De Geer), fluff louse (*Goniocotes gallinae* De Geer), sheep body louse (*Bovicola ovis* Schrank), short-nosed cattle louse (*Haematopinus eurysternus* Nitzsch), long-nosed cattle louse (*Linognathus vituli* Linnaeus) and other

sucking and chewing parasitic lice that attack man and animals; insect pests of the order Siphonoptera including the oriental rat flea (*Xenopsylla cheopis* Rothschild), cat flea (*Ctenocephalides felis* Bouche), dog flea (*Ctenocephalides canis* Curtis), hen flea (*Ceratophyllus gallinae* Schrank), sticktight flea (*Echidnophaga gallinacea* Westwood), human flea (*Pulex irritans* Linnaeus) and other fleas afflicting mammals and birds. Additional arthropod pests covered include: spiders in the order Araneae such as the brown recluse spider (*Loxosceles reclusa* Gertsch & Mulaik) and the black widow spider (*Latrodectus mactans* Fabricius), and centipedes in the order Scutigeromorpha such as the house centipede (*Scutigera coleoptrata* Linnaeus).

Compounds of the present invention also have activity on parasitic helminths of the phylum Platyhelminthes (flatworms), including the classes Cestoda (tapeworms) and Trematoda (flukes); the phylum Acanthocephala (thorny-headed worms), including the classes Archiacanthocephala and Palaeacanthocephala; and the phylum Nematoda (roundworms), including the classes Adenophorea (Aphasmidae) and Secernentea (Phasmidae). Compounds of the present invention also have activity on economically important members of the orders Enoplida, Dorylaimida, Rhabditida, Strongylida, Ascaridida, Oxyurida, Spirurida, Tylenchida, Aphelenchida, Diplogasterida, Rhabdiasida and Camallanida, such as, but not limited to, economically important agricultural pests (e.g. root knot nematodes in the genus Meloidogyne, cyst nematodes in the genus Heterodera, lesion nematodes in the genus Pratylenchus, stem nematodes in the genus Ditylenchus, seed and leaf nematodes in the genus Aphelenchoides, and sting nematodes in the genus Xiphinema); and animal and human health pests (e.g. flukes, tapeworms and roundworms, such as Strangylus vulgaris in horses, Toxocara canis in dogs, Haemonchus contortus in sheep, Dirofilaria immitis in dogs, Anoplocephala perfoliata in horses and Fasciola hepatica in ruminants, etc.).

Compounds of the invention show particularly high activity against pests in the order Homoptera including: *Acyrthisiphon pisum* Harris (pea aphid), *Aphis craccivora* Koch (cowpea aphid), *Aphis fabae* Scopoli (black bean aphid), *Aphis gossypii* Glover (cotton aphid, melon aphid), *Aphis pomi* De Geer (apple aphid), *Aphis spiraecola* Patch (spirea aphid), *Aulacorthum solani* Kaltenbach (foxglove aphid), *Chaetosiphon fragaefolii* Cockerell (strawberry aphid), *Diuraphis noxia* Kurdjumov/Mordvilko (Russian wheat aphid), *Dysaphis plantaginea* Paaserini (rosy apple aphid), *Eriosoma lanigerum* Hausmann (woolly apple aphid), *Hyalopterus pruni* Geoffroy (mealy plum aphid), *Lipaphis erysimi* Kaltenbach (turnip aphid), *Metopolophium dirrhodum* Walker (cereal aphid), *Macrosipum euphorbiae* Thomas (potato aphid), *Myzus persicae* Sulzer (peach-potato aphid, green peach aphid), *Nasonovia ribisnigri* Mosley (lettuce aphid), *Pemphigus* spp. (root aphids and gall aphids), *Rhopalosiphum maidis* Fitch (corn leaf aphid), *Rhopalosiphum padi* Linnaeus (bird cherry-oat aphid), *Schizaphis graminum* Rondani (greenbug), *Sitobion avenae* Fabricius

(English grain aphid), *Therioaphis maculata* Buckton (spotted alfalfa aphid), *Toxoptera aurantii* Boyer de Fonscolombe (black citrus aphid), and *Toxoptera citricida* Kirkaldy (brown citrus aphid); *Adelges* spp. (adelgids); *Phylloxera devastatrix* Pergande (pecan phylloxera); *Bemisia tabaci* Gennadius (tobacco whitefly, sweetpotato whitefly), *Bemisia argentifolii* Bellows & Perring (silverleaf whitefly), *Dialeurodes citri* Ashmead (citrus whitefly) and *Trialeurodes vaporariorum* Westwood (greenhouse whitefly); *Empoasca fabae* Harris (potato leafhopper), *Laodelphax striatellus* Fallen (smaller brown planthopper), *Macrolestes quadrilineatus* Forbes (aster leafhopper), *Nephotettix cinticeps* Uhler (green leafhopper), *Nephotettix nigropictus* Stål (rice leafhopper), *Nilaparvata lugens* Stål (brown planthopper), *Peregrinus maidis* Ashmead (corn planthopper), *Sogatella furcifera* Horvath (white-backed planthopper), *Sogatodes orizicola* Muir (rice delphacid), *Typhlocyba pomaria* McAtee white apple leafhopper, *Erythroneoura* spp. (grape leafhoppers); *Magicidada septendecim* Linnaeus (periodical cicada); *Icerya purchasi* Maskell (cottony cushion scale), *Quadraspidiotus perniciosus* Comstock (San Jose scale); *Planococcus citri* Risso (citrus mealybug); *Pseudococcus* spp. (other mealybug complex); *Cacopsylla pyricola* Foerster (pear psylla), *Trioza diospyri* Ashmead (persimmon psylla).

Compounds of the present invention show particularly high activity against nematode pests of the orders Tylenchida and Dorylaimida including: root gall nematodes of the genus Meloidogyne, such as *Meloidogyne acronea* (sorghum root-knot nematode), *Meloidognye arenaria* (peanut root-knot nematode), *Meloidogyne brevicauda* (tea root-knot nematode), *Meloidogyne chitwoodi* (Columbia root-knot nematode), *Meloidogyne exigua* (Brazilian root-knot nematode), *Meloidogyne graminicola* (rice root-knot nematode), *Meloidogyne hapla* (Northern root-knot nematode), *Meloidogyne incognita* (Southern root-knot nematode), *Meloidogyne incognita acrita* (cotton root-knot nematode), *Meloidogyne indica* (citrus root-knot nematode), *Meloidogyne javanica* (Javanese root-knot nematode) and *Meloidogyne mali* (apple root-knot nematode); cyst nematodes of the genus Heterodera, such as *Heterodera amygdali* (almond cyst nematode), *Heterodera avenae* (cereal cyst nematode), *Heterodera carotae* (carrot cyst nematode), *Heterodera cruciferae* (Brassica root eelworm), *Heterodera elachista* (Japanese cyst nematode), *Heterodera fici* (fig cyst nematode), *Heterodera glycines* (soybean cyst nematode), *Heterodera goettingiana* (pea cyst nematode), *Heterodera oryzae* (rice cyst nematode), *Heterodera sacchari* (sugar cane cyst nematode), *Heterodera schachtii* (sugar beet cyst nematode) and *Heterodera zeae* (corn cyst nematode); cyst nematodes of the genus Globodera, such as *Globodera mali* (apple cyst nematode), *Globodera pallida* (potato cyst nematode), *Globodera rostochiensis* (golden nematode) and *Globodera tabacum* (tobacco cyst nematode); lesion nematodes of the genus Pratylenchus, such as *Pratylenchus brachyurus* (Godfrey's root-lesion nematode), *Pratylenchus coffeae* (banana meadow nematode), *Pratylenchus musicola* (banana nematode), *Pratylenchus penetrans* (Cobb's meadow nematode), *Pratylenchus pratensis* (De Man's root-lesion

nematode), *Pratylenchus scribneri* (Scribner's lesion nematode), *Pratylenchus thornei* (Thorne's root-lesion nematode), *Pratylenchus vulnus* (walnut root-lesion nematode) and *Pratylenchus zeae* (corn root-lesion nematode); stem nematodes of the genus Ditylenchus, such as *Ditylenchus angustus* (rice stem nematode), *Ditylenchus destructor* (potato tuber nematode), *Ditylenchus dipsaci* (beet stem nematode) and *Ditylenchus myceliophagus* (mushroom spawn nematode); sting or dagger nematodes of the genus Xiphinema, such as *Xiphinema americanum* (American dagger nematode), *Xiphinema chambersi* (Chamber's dagger nematode), *Xiphinema diversicaudatum* (European dagger nematode), *Xiphinema index* (California dagger nematode) and *Xiphinema radicicola* (Pacific dagger nematode); seed and leaf nematodes of the genus Aphelenchoides, such as *Aphelenchoides besseyi* (rice white-tip nematode), *Aphelenchoides composticola* (mushroom nematode), *Aphelenchoides fragariae* (strawberry nematode), *Aphelenchoides oryzae* (rice nematode) and *Aphelenchoides ritzemabosi* (chrysanthemum nematode).

One or more compounds of this invention can also be mixed with one or more "other" biologically active compounds or agents where "other" biologically active compounds or agents do not include compounds of Formula I. Such "other" biologically active compounds or agents include insecticides, fungicides, nematocides, bactericides, acaricides, growth regulators such as rooting stimulants, chemosterilants, semiochemicals, repellents, attractants, pheromones, feeding stimulants, other biologically active compounds or entomopathogenic bacteria, virus or fungi to form a multi-component pesticide giving an even broader spectrum of agricultural utility. Thus the present invention also pertains to a composition comprising a biologically effective amount of a compound of Formula **I**, an *N*-oxide thereof, or an agronomic or nonagronomic suitable salt thereof, and at least one additional component selected from the group consisting of a surfactant, a solid diluent or a liquid diluent, said composition optionally further comprising at least one additional biologically active compound or agent. Examples of such biologically active compounds or agents with which compounds of this invention can be formulated are: insecticides such as abamectin, acephate, acetamiprid, acetoprole, amidoflumet (S-1955), avermectin, azadirachtin, azinphos-methyl, bifenthrin, bifenazate, bistrifluron, buprofezin, carbofuran, chlorfenapyr, chlorfluazuron, chlorpyrifos, chlorpyrifos-methyl, chromafenozide, clothianidin, cyfluthrin, beta-cyfluthrin, cyhalothrin, lambda-cyhalothrin, cypermethrin, cyromazine, deltamethrin, diafenthiuron, diazinon, diflubenzuron, dimethoate, dinotefuran, diofenolan, emamectin, endosulfan, esfenvalerate, ethiprole, fenothicarb, fenoxycarb, fenpropathrin, fenvalerate, fipronil, flonicamid, flucythrinate, tau-fluvalinate, flufenerim (UR-50701), flufenoxuron, gamma-chalothrin, halofenozide, hexaflumuron, imidacloprid, indoxacarb, isofenphos, lufenuron, malathion, metaldehyde, methamidophos, methidathion, methomyl, methoprene, methoxychlor, methoxyfenozide, metofluthrin, monocrotophos, methoxyfenozide, novaluron, noviflumuron (XDE-007), oxamyl, parathion,

parathion-methyl, permethrin, phorate, phosalone, phosmet, phosphamidon, pirimicarb, profenofos, profluthrin, protrifenbute, pymetrozine, pyridalyl, pyriproxyfen, rotenone, S1812 (Valent) spinosad, spiromesifen (BSN 2060), sulprofos, tebufenozide, teflubenzuron, tefluthrin, terbufos, tetrachlorvinphos, thiacloprid, thiamethoxam, thiodicarb, thiosultap-sodium, tolfenpyrad, tralomethrin, trichlorfon and triflumuron; fungicides such as acibenzolar, S-methyl, azoxystrobin, benalazy-M, benthiavalicarb, benomyl, blasticidin-S, Bordeaux mixture (tribasic copper sulfate), boscalid, bromuconazole, buthiobate, carpropamid, captafol, captan, carbendazim, chloroneb, chlorothalonil, clotrimazole, copper oxychloride, copper salts, cymoxanil, cyazofamid, cyflufenamid, cyproconazole, cyprodinil, diclocymet, diclomezine, dicloran, difenoconazole, dimethomorph, dimoxystrobin, diniconazole, diniconazole-M, dodine, edifenphos, epoxiconazole, ethaboxam, famoxadone, fenarimol, fenbuconazole, fenhexamid, fenoxanil, fenpiclonil, fenpropidin, fenpropimorph, fentin acetate, fentin hydroxide, fluazinam, fludioxonil, flumorph, fluoxastrobin, fluquinconazole, flusilazole, flutolanil, flutriafol, folpet, fosetyl-aluminum, furalaxyl, furametapyr, guazatine, hexaconazole, hymexazol, imazalil, imibenconazole, iminoctadine, ipconazole, iprobenfos, iprodione, iprovalicarb, isoconazole, isoprothiolane, kasugamycin, kresoxim-methyl, mancozeb, maneb, mefenoxam, mepanapyrim, mepronil, metalaxyl, metconazole, metominostrobin/fenominostrobin, metrafenone, miconazole, myclobutanil, neo-asozin (ferric methanearsonate), nuarimol, oryzastrobin, oxadixyl, oxpoconazole, penconazole, pencycuron, picobenzamid, picoxystrobin, probenazole, prochloraz, propamocarb, propiconazole, proquinazid, prothioconazole, pyraclostrobin, pyrimethanil, pyrifenox, pyroquilon, quinoxyfen, silthiofam, simeconazole, sipconazole, spiroxamine, sulfur, tebuconazole, tetraconazole, tiadinil, thiabendazole, thifluzamide, thiophanate-methyl, thiram, tolylfluanid, triadimefon, triadimenol, triarimol, tricyclazole, trifloxystrobin, triflumizole, triforine, triticonazole, uniconazole, validamycin, vinclozolin and zoxamide; nematocides such as aldicarb, oxamyl and fenamiphos; bactericides such as streptomycin; acaricides such as amitraz, chinomethionat, chlorobenzilate, cyhexatin, dicofol, dienochlor, etoxazole, fenazaquin, fenbutatin oxide, fenpropathrin, fenpyroximate, hexythiazox, propargite, pyridaben and tebufenpyrad; and biological agents such as entomopathogenic bacteria (e.g., *Bacillus thuringiensis* ssp. *Aizawai* and *Bacillus thuringiensis* ssp. *Kurstaki*), entomopathogenic baculovirus (e.g., nucleopolyhedro virus (NPVs), granulosis virus (GVs)), entomopathogenic fungi (e.g., green muscardine fungus) and *Bacillus thuringiensis* encapsulated delta-endotoxin. Compounds of this invention and compositions thereof can be applied to plants genetically transformed to express proteins toxic to invertebrate pests (such as *Bacillus thuringiensis* toxin). The effect of the exogenously applied invertebrate pest control compounds of this invention may be synergistic with the expressed toxin proteins.

General references for these agricultural protectants include *The Pesticide Manual, 12th Edition*, C. D. S. Tomlin, Ed., British Crop Protection Council, Farnham, Surrey, U.K.,

2000, and *The BioPestcide Manual*, 2nd Edition, L. G. Copping, Ed., British Crop Protection Council, Farnham, Surrey, U.K., 1998.

One embodiment of insecticides and acaricides for mixing with compounds of this invention include pyrethroids such as cypermethrin, cyhalothrin, cyfluthrin, beta-cyfluthrin, esfenvalerate, fenvalerate and tralomethrin; carbamates such as fenothicarb, methomyl, oxamyl and thiodicarb; neonicotinoids such as acetamiprid, clothianidin, imidacloprid, thiamethoxam, and thiacloprid; neuronal sodium channel blockers such as indoxacarb; insecticidal macrocyclic lactones such as spinosad, abamectin, avermectin and emamectin; γ-aminobutyric acid (GABA) antagonists such as endosulfan, ethiprole and fipronil; insecticidal ureas such as flufenoxuron and triflumuron; juvenile hormone mimics such as diofenolan and pyriproxyfen; pymetrozine; and amitraz. Preferred biological agents for mixing with compounds of this invention include *Bacillus thuringiensis* and *Bacillus thuringiensis* encapsulated delta-endotoxin as well as naturally occurring and genetically modified viral insecticides including members of the family Baculoviridae as well as entomophagous fungi.

Another embodiment of mixtures include a mixture of a compound of this invention with cyhalothrin; a mixture of a compound of this invention with beta-cyfluthrin; a mixture of a compound of this invention with esfenvalerate; a mixture of a compound of this invention with methomyl; a mixture of a compound of this invention with imidacloprid; a mixture of a compound of this invention with thiacloprid; a mixture of a compound of this invention with indoxacarb; a mixture of a compound of this invention with abamectin; a mixture of a compound of this invention with endosulfan; a mixture of a compound of this invention with ethiprole; a mixture of a compound of this invention with fipronil; a mixture of a compound of this invention with flufenoxuron; a mixture of a compound of this invention with pyriproxyfen; a mixture of a compound of this invention with pymetrozine; a mixture of a compound of this invention with amitraz; a mixture of a compound of this invention with *Bacillus thuringiensis aizawai* or *Bacillus thuringiensis kurstaki*, and a mixture of a compound of this invention with *Bacillus thuringiensis* encapsulated delta-endotoxin.

In certain instances, combinations with other invertebrate pest control compounds or agents having a similar spectrum of control but a different mode of action will be particularly advantageous for resistance management. Thus, compositions of the present invention can further comprise a biologically effective amount of at least one additional invertebrate pest control compound or agent having a similar spectrum of control but a different mode of action. Contacting a plant genetically modified to express a plant protection compound (e.g., protein) or the locus of the plant with a biologically effective amount of a compound of this invention can also provide a broader spectrum of plant protection and be advantageous for resistance management.

Invertebrate pests are controlled in agronomic and nonagronomic applications by applying one or more of the compounds of this invention, in an effective amount, to the environment of the pests including the agronomic and/or nonagronomic locus of infestation, to the area to be protected, or directly on the pests to be controlled. Thus, the present invention further comprises a method for the control of invertebrates in agronomic and/or nonagronomic applications, comprising contacting the invertebrates or their environment with a biologically effective amount of one or more of the compounds of the invention, or with a composition comprising at least one such compound or with a composition comprising at least one such compound and an effective amount of at least one additional biologically active compound or agent. Examples of suitable compositions comprising a compound of the invention and an effective amount of at least one additional biologically active compound or agent include granular compositions wherein the additional biologically active compound is present on the same granule as the compound of the invention or on granules separate from those of the compound of this invention.

One embodiment of a method of contact is by spraying. Alternatively, a granular composition comprising a compound of the invention can be applied to the plant foliage or the soil. Compounds of this invention can also be effectively delivered through plant uptake by contacting the plant with a composition comprising a compound of this invention applied as a soil drench of a liquid formulation, a granular formulation to the soil, a nursery box treatment or a dip of transplants. Compounds can also be effective by topical application of a composition comprising a compound of this invention to the locus of infestation. Other methods of contact include application of a compound or a composition of the invention by direct and residual sprays, aerial sprays, gels, seed coatings, microencapsulations, systemic uptake, baits, eartags, boluses, foggers, fumigants, aerosols, dusts and many others. The compounds of this invention may also be impregnated into materials for fabricating invertebrate control devices (e.g. insect netting).

A compound of this invention can be incorporated into a bait composition that is consumed by an invertebrate pest or used within a device such as a, trap, bait station, and the like. Such a bait composition can be in the form of granules which comprise (a) an active ingredient, namely a compound of Formula **I**, an *N*-oxide, or agronomic or nonagronomic suitable salt thereof, (b) one or more food materials, optionally (c) an attractant, and optionally (d) one or more humectants. Granules or bait compositions which comprise between about 0.001-5% active ingredient; about 40-99% food material and/or attractant; and optionally about 0.05-10% humectants; can be effective in controlling soil invertebrate pests at very low application rates, particularly at doses of active ingredient that are lethal by ingestion rather than by direct contact. Some food materials can function both as a food source and an attractant. Food materials include carbohydrates, proteins and lipids. Examples of food materials are vegetable flour, sugar, starches, animal fat, vegetable oil,

yeast extracts and milk solids. Examples of attractants are odorants and flavorants, such as fruit or plant extracts, perfume, or other animal or plant component, pheromones or other agents known to attract a target invertebrate pest. Examples of humectants, i.e. moisture retaining agents, are glycols and other polyols, glycerine and sorbitol. Of note is a bait composition (and a method utilizing such a bait composition) used to control an invertebrate pest including individually or in combinations ants, termites, and cockroaches. A device for controlling an invertebrate pest can comprise the present bait composition and a housing adapted to receive the bait composition, wherein the housing has at least one opening sized to permit the invertebrate pest to pass through the opening so the invertebrate pest can gain access to the bait composition from a location outside the housing, and wherein the housing is further adapted to be placed in or near a locus of potential or known activity for the invertebrate pest.

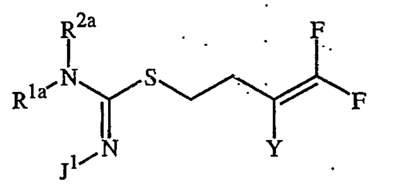
The compounds of this invention can be applied in their pure state, but most often application will be of a formulation comprising one or more compounds with suitable carriers, diluents, and surfactants and possibly in combination with a food depending on the contemplated end use. A preferred method of application involves spraying a water dispersion or refined oil solution of the compounds. Combinations with spray oils, spray oil concentrations, spreader stickers, adjuvants, other solvents, and synergists such as piperonyl butoxide can enhance compound efficacy. For nonagronomic uses such sprays can be applied from spray containers such as a can, a bottle or other container, either by means of a pump or by releasing it from a pressurized container, e.g. a pressurized aerosol spray can. Such spray compositions can take various forms, for example, sprays, mists, foams, fumes or fog. Such spray compositions thus can further comprise propellants, foaming agents, etc. as the case may be. Of note is a spray composition comprising a compound or composition of the present invention and a propellant. Representative propellants include, but are not limited to, methane, ethane, propane, iospropane, butane, isobutane, butene, pentane, iospentane, neopentane, pentene, hydrofluorocarbons, chlorofluoroacarbons, dimethyl ether, and mixtures of the foregoing. Of note is a spray composition (and a method utilizing such a spray composition dispensed from a spray container) used to control an invertebrate pest including individually or in combinations mosquitoes, black flies, stable flies, deer flies, horse flies, wasps, yellow jackets, hornets, ticks, spiders, ants, gnats, and the like.

The rate of application required for effective control (i.e. "biologically effective amount") will depend on such factors as the species of invertebrate to be controlled, the pest's life cycle, life stage, its size, location, time of year, host crop or animal, feeding behavior, mating behavior, ambient moisture, temperature, and the like. Under normal circumstances, application rates of about 0.01 to 2 kg of active ingredient per hectare can be sufficient to control pests in agronomic ecosystems, but as little as 0.0001 kg/hectare can be sufficient or as much as 8 kg/hectare can be required. For nonagronomic applications,

effective use rates can range from about 1.0 to 50 mg/square meter but as little as 0.1 mg/square meter can be sufficient or as much as 150 mg/square meter can be required. One skilled in the art can easily determine the biologically effective amount necessary for the desired level of invertebrate pest control.

The following TESTS demonstrate the control efficacy of compounds of this invention on specific pests. "Control efficacy" represents inhibition of arthropod development (including mortality) that causes significantly reduced feeding. The pest control protection afforded by the compounds is not limited, however, to these species. See Index Tables A-K for compound descriptions. The following abbreviations are used in the Index Tables which follow: *t* means tertiary, *s* means secondary, *n* means normal, *i* means iso, *c* means cyclo, Me means methyl, Et means ethyl, Pr means propyl, *i*-Pr means isopropyl, *c*-pentyl means cyclopentyl, Bu means butyl, Ph means phenyl, OMe means methoxy, OEt means ethoxy, SMe means methylthio, SEt means ethylthio, CN and NC both mean cyano, $PhSO_2$ means phenylsulfonyl and NO_2 means nitro. The abbreviation "Ex." stands for "Example" and is followed by a number indicating in which example the compound is prepared.

INDEX TABLE A

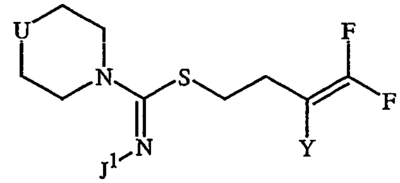


Compd. No.	J^1	R^{1a}	R^{2a}	Y	NMR
A1 (Ex. 1)	2-F-Ph	Me	Me	H	*
A2 (Ex. 2)	2,4-di-F-Ph	Me	H	H	*
A3	2-pyridyl	Me	Me	H	*
A4	4,6-di-ethoxy-2-[1,3,5]-triazine	Me	Me	H	*
A5	4,6-di-methyl-2-pyrimidine	Me	Me	H	*
A6	4,6-di-methyl-2-pyrimidine	Et	Et	H	*
A7	2,6-di-F-Ph	Et	Et	H	*
A8	2,6-di-F-Ph	Me	Me	H	*
A9	$2-NO_2$-Ph	Me	Me	H	*
A10	2,6-di-*i*-Pr-Ph	H	*t*-Bu	H	*
A11	2,6-di-*i*-Pr-Ph	Me	Me	H	*
A12	2,4-di-Cl-Ph	Me	Me	H	*
A13	2,6-di-Cl-Ph	Me	Me	H	*

Compd. No.	J^1	R^{1a}	R^{2a}	Y	NMR
A14	3,4-di-Cl-Ph	Me	Me	H	*
A15	4-$SCHF_2$-Ph	Me	Me	H	*
A16	2-*i*-Pr-4-Br-Ph	Me	Me	H	*
A17	2-*i*-Pr-6-Br-Ph	Me	Me	H	*
A18	Ph	Me	Me	H	*
A19	2-*i*-Pr-6-(2,5-di-Cl-Ph)-Ph	Me	Me	H	*
A20	3-NO_2-Ph	Me	Me	H	*
A21	4-NO_2-Ph	Me	Me	H	*
A23	4-Cl-Ph	Me	Me	H	*
A25	4-CF_3-Ph	Me	Me	H	*
A28	4-CN-Ph	Me	Me	H	*
A29	2,4-di-F-Ph	Me	Me	H	*
A31	4-F-Ph	Me	Me	H	*
A34	2-Cl-Ph	Me	Me	H	*
A36	2-$OCHF_2$-Ph	Me	H	H	*
A38	2-Me-Ph	H	Me	H	*
A42	4-OMe-Ph	H	Me	H	*
A43	3-Cl-Ph	Me	Me	H	*
A45	3-NO_2-Ph	Me	Me	H	*
A46	3-OMe-Ph	Me	Me	H	*
A47	2-Me-4-NO_2-Ph	Me	Me	H	*

* See Index Table K for ^1H NMR data.

INDEX TABLE B

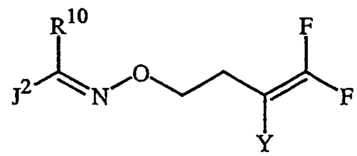


Compd. No.	J^1	U	Y	NMR
B1	2-pyrimidine	CH_2	H	*
B2	4,6-di-methyl-2-pyrimidine	CH_2	H	*
B3	2,6-di-F-Ph	CH_2	H	*
B4	2,6-di-F-Ph	O	H	*
B5	2-NO_2-Ph	O	H	*
B6	4,6-di-methyl-2-pyrimidine	O	H	*
B7	2,6-di-*i*-Pr-Ph	O	H	*
B8	2,6-di-Cl-Ph	O	H	*

Compd. No.	J^1	U	Y	NMR
B9	4,5-di-Cl-Ph	O	H	*
B10	4-$SCHF_2$	O	H	*
B11	2-Br-6-*i*-Pr-Ph	O	H	*
B12	2-*i*-Pr-4-Br-Ph	O	H	*

* See Index Table K for ^{1}H NMR data.

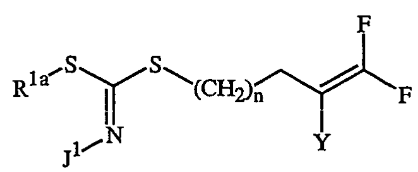
INDEX TABLE C



Compd. No.	J^2	R^{10}	Y	NMR
C1 (Ex. 3)	2,4-di-Cl-Ph	H	H	*
C2	2,6-di-Cl-Ph	H	H	*
C3	Ph	CN	F	*
C4	Ph	CN	H	*
C5 (Ex. 4)	$(CH_3)_2NC(=O)$	SMe	H	*
C6	2-Cl,6-F-Ph	H	H	*
C7	Ph	Me	H	*
C8	$CH_2CH_2CH=CF_2$	$CONMe_2$	H	*

* See Index Table K for ^{1}H NMR data.

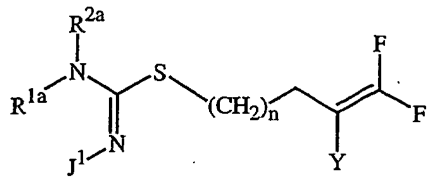
INDEX TABLE D



Compd. No.	J^1	R^{1a}	Y	n	NMR
D1	CN	$CH_2CH_2CH=CF_2$	H	1	*
D2 (Ex. 5)	CN	Me	H	1	*
D3	2,6-di-F-Ph	$CH_2CH_2CH=CF_2$	H	1	*
D4 (Ex. 6)	3-Cl-5-CF_3-Pyridin-2-yl	$CH_2CH_2CH=CF_2$	H	1	*
D5	Pyrimidin-2-yl	$CH_2CH_2CH=CF_2$	H	1	*

* See Index Table K for ^{1}H NMR data.

INDEX TABLE E



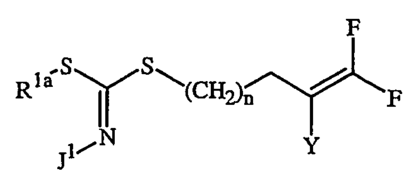
Compd. No.	J^1	R^{1a}	R^{2a}	Y	n	NMR
E1	2-Cl-5-thiazolyl-CH_2	Me	Me	H	1	*
E2	3-pyridinyl-CH_2	3-pyridinyl-CH_2	H	H	1	*
E3	2,6-di-F-benzoyl	Me	Me	H	1	*
E4	4-CF_3-3-pyridinyl-C(O)	Me	Me	H	1	*
E5	2-F-Ph	Me	Me	F	1	*
E6	4-Cl-Ph	Me	Me	F	1	*
E7	4-CF_3-Ph	Me	Me	F	1	*
E8	4-CN-Ph	Me	Me	F	1	*
E9	2,4-di-F-Ph	Me	Me	F	1	*
E10	4-F-Ph	Me	Me	F	1	*
E11	2-Cl-Ph	Me	Me	F	1	*
E12	CHF_2O-Ph	Me	H	F	1	*
E13	2,4-di-F-Ph	Me	H	F	1	*
E14	2-CH_3-Ph	Me	H	F	1	*
E15	4-CH_3O-Ph	Me	H	F	1	*
E16	2,4-di-Cl-Ph	Me	H	F	1	*
E17	2-CH_3-4-NO_2-Ph	Me	Me	F	1	*
E18	Ph	Me	Me	H	1	*
E19	Ph	Me	Me	F	1	*
E20	3-Cl-Ph	Me	Me	F	1	*
E21	3-NO_2-Ph	Me	Me	F	1	*
E22	3-CH_3O-Ph	Me	Me	F	1	*
E23	3-pyridinyl	Me	Me	H	1	*
E24	3-pyridinyl	Me	Me	F	1	*
E25	1-naphthalenyl	Me	Me	H	1	*
E26	1-naphthalenyl	Me	Me	F	1	*
E27	3,4-di-Cl-Ph	Me	Me	H	1	*
E28	3,4-di-Cl-Ph	Me	Me	F	1	*
E29	3-CN-Ph	Me	Me	H	1	*
E30	3-CN-Ph	Me	Me	F	1	*

Compd. No.	J^1	R^{1a}	R^{2a}	Y	n	NMR
E31	2-F-Ph	Me	H	H	1	*
E32	*c*-pentyl	Me	Me	H	1	*
E33	2,1,3-benzothiadiazol-5-yl	Me	Me	H	1	*
E34	2,1,3-benzothiadiazol-5-yl	Me	Me	F	1	*
E35	2,3-dihydro-1,4-benzodioxin-6-yl	Me	Me	H	1	*
E36	2,3-dihydro-1,4-benzodioxin-6-yl	Me	Me	F	1	*
E37	2-($CH_3OC(O)$)-3-thienyl	Me	Me	H	1	*
E38	2-($CH_3OC(O)$)-3-thienyl	Me	Me	F	1	*
E39	2-F-Ph	H	H	H	1	*
E40	CN	$(CH_3)_2CHCH_2$	H	H	1	*
E41 (Ex. 10)	CN	Me	Me	H	1	*
E42	CN	c-propyl	H	H	1	*
E43	CN (E/Z)	2-F-Ph-CH_2	H	H	1	*
E44	CN	{$CH_2CH_2CH(CH_3)CH_2CH_2$}		H	1	*
E45	CN	*t*-butyl	H	H	1	*
E46	CN	{$CH_2CH_2CH_2CH_2$}		H	1	*
E47	CN	Me	Et	H	1	*
E48	CN	*i*-Pr	H	H	1	*
E49	CN	{$CH_2CH_2OCH_2CH_2$}		H	1	*
E50	CN	{$CH_2CH_2CH_2CH_2CH_2$}		H	1	*
E51	CN	Et	H	H	1	*
E52	CN	Me	H	H	1	*
E53	CN	Me	Me	F	1	*
E54	CN	{$CH_2CH_2CH(CH_3)CH_2CH_2$}		F	1	*
E55	CN	*i*-Bu	H	F	1	*
E56	CN	2-F-Ph-CH_2	H	F	1	*
E57	Ph	CN	H	H	1	*
E58	4-CH_3O-Ph	CN	H	H	1	*
E59	2-F-Ph	CN	H	H	1	*
E60	2,4-di-F-Ph	CN	H	H	1	*
E61	2-Cl-Ph	CN	H	H	1	*
E62	2,6-di-Cl-Ph	CN	H	H	1	*
E63	4-Cl-Ph	CN	H	H	1	*
E64	CN	Et	$(Et)_2NCH_2CH_2$	H	1	*
E65	CN	Me	$(CH_3)_2NCH_2CH_2$	H	1	*

Compd. No.	J^1	R^{1a}	R^{2a}	Y	n	NMR
E66	CN	$\{CH_2CH_2N(CH_3)CH_2CH_2\}$		H	1	*
E67	CN	$(CH_3)_2NCH_2CH_2$	$PhCH_2$	H	1	*
E68	CN	$(CH_3)_2N(CH_2)_3$	$(CH_3)_2N(CH_2)_3$	H	1	*
E69	CN	$\{(S)\text{-}CH(CO_2\text{-}t\text{-}Bu)CH_2CH_2CH_2\}$		H	1	*
E70	CN	$(MeO)_2CHCH(CH_3)$	H	H	1	*
E71	$CH_3S(O)_2$	Me	Et	H	1	*
E72	$CH_3S(O)_2$	Et	H	H	1	*
E73	$PhSO_2$	Et	H	H	1	*
E74	$PhSO_2$	Me	Et	H	1	*
E75	$CH_3OC(O)$	Me	Et	H	1	*
E76	$CH_3OC(O)$	Et	H	H	1	*
E77	$CH_3CH_2OC(O)$	Et	H	H	1	*
E78	$CH_3CH_2OC(O)$	Me	Et	H	1	*
E79	2-Ph-6-*i*-Pr-Ph	*t*-Bu	H	H	1	*
E80	benzoyl	Me	Me	H	1	*
E81	*c*-pentyl	Me	Me	H	1	*
E82	*c*-hexyl	Me	Me	H	1	*
E83	$PhCH_2$	Me	Me	H	1	*
E84	3,4-diF-Ph	Me	Me	F	3	*
E85	CN	Me	Et	H	3	*
E86	CN	Me	Me	H	3	*
E87	CN	Me	H	H	3	*

* See Index Table K for ^{1}H NMR data.

INDEX TABLE F



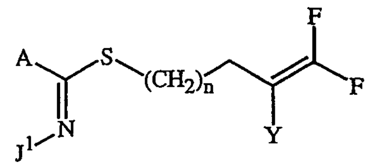
Compd. No.	J^1	R^{1a}	Y	n	NMR
F1	CN	Me	F	1	*
F2	$(CH_3)_2N$	Me	H	1	*
F3	*c*-propyl	Me	H	1	*
F4	$CH_2{=}CHCH_2$	Me	H	1	*
F5	$PhCH_2$	Me	H	1	*
F6	*c*-propyl	$CH_2{=}CHCH_2$	H	1	*

Compd. No.	J^1	R^{1a}	Y	n	NMR
F7	*c*-propyl	Et	H	1	*
F8	*i*-Pr	Me	H	1	*
F9	$(CH_3)_2CHCH_2$	Me	H	1	*
F10	CH_3CH_2	Me	H	1	*
F11	*c*-propyl-CH_2	Me	H	1	*
F12	CN	$PhCH_2$	H	1	*
F13	CN	$CH_2{=}CHCH_2$	H	1	*
F14	Ph	Me	F	1	*
F15	2-F-Ph	Me	H	1	*
F16	Ph	Me	H	1	*
F17	CN	Et	H	1	*
F18	CN	*c*-pentyl	H	1	*
F19	CN	$CH_3OC(O)CH_2CH_2$	H	1	*
F20	CN	$(CH_3)_2C{=}CHCH_2$	H	1	*
F21	CN	NC-CH_2	H	1	*
F22	CN	*c*-Bu-CH_2	H	1	*
F23	CN	$CH_3CH_2OC(O)CH_2$	H	1	*
F24	CN	*i*-Pr	H	1	*
F25	CN	*c*-propyl-CH_2	H	1	*
F26	CN	4-NO_2-$PhCH_2$	H	1	*
F27	CN	2,6-di-F-$PhCH_2$	H	1	*
F28	CN	$CH_3OC(O)C(CH_3)_2$	H	1	*
F29	$CH_3C(O)$	Me	H	1	*
F30	$(CH_3)_2N$	*i*-Pr	H	1	*
F31	CN	3-F-Ph	H	1	*
F32	CN	Ph	H	1	*
F33	CN	2-CH_3-Ph	H	1	*
F34	CN	2,6-di-Cl-Ph	H	1	*
F35	CN	2-benzoxazolyl	H	1	*
F36	CN	2-benzothiazolyl	H	1	*
F37	$CF_2{=}CHCH_2CH_2$	Me	H	1	*
F38	$CF_2{=}CHCH_2CH_2$	$CH_2{=}CHCH_2$	H	1	*
F39	benzoyl	Me	H	1	*
F40	$CH_3CH_2C(O)$	Me	H	1	*
F41	$PhSO_2$	Me	H	1	*
F42	$PhSO_2$	Et	H	1	*
F43	$PhSO_2$	NC-CH_2	H	1	*

Compd. No.	J^1	R^{1a}	Y	n	NMR
F44	$PhSO_2$	$CH_3OC(O)CH_2$	H	1	*
F45	$PhSO_2$	$PhCH_2$	H	1	*
F46	$PhSO_2$	$CF_2{=}CHCH_2CH_2$	H	1	*
F47	$CH_3S(O)_2$	$PhCH_2$	H	1	*
F48	$CH_3S(O)_2$	Me	H	1	*
F49	$CH_3S(O)_2$	*i*-Pr	H	1	*
F50	$CH_3S(O)_2$	NC-CH_2	H	1	*
F51	$CH_3S(O)_2$	$CH_3OC(O)CH_2$	H	1	*
F52	$CH_3S(O)_2$	$CF_2{=}CHCH_2CH_2$	H	1	*
F53	$PhSO_2$	*i*-Pr	H	1	*
F54	$PhSO_2$	*c*-hexyl	H	1	*
F55	$CH_3CH_2OC(O)$	$PhCH_2$	H	1	*
F56	$CH_3OC(O)$	Et	H	1	*
F57	$CH_3OC(O)$	$PhCH_2$	H	1	*
F58	$CH_3OC(O)$	$CF_2{=}CHCH_2CH_2$	H	1	*
F59	$CH_3CH_2OC(O)$	$CF_2{=}CHCH_2CH_2$	H	1	*
F60	$CH_3OC(O)$	*i*-Pr	H	1	*
F61	$CH_3OC(O)$	$CH_3OC(O)CH_2$	H	1	*
F62	$CH_3CH_2OC(O)$	Me	H	1	*
F63	$CH_3CH_2OC(O)$	CH_3CH_2	H	1	*
F64	$CH_3CH_2OC(O)$	*i*-Pr	H	1	*
F65	$(CH_3C(O))_2N$	Me	H	1	*
F66	$CH_3C(O)NH$	Me	H	1	*
F67	Me	Me	H	1	*
F68	NH_2	Me	H	1	*
F69	$CF_2{=}CHCH_2CH_2NH$	Me	H	1	*
F70	$CF_2{=}CHCH_2CH_2N(CH_3)$	Me	H	1	*
F71	$CF_2{=}CHCH_2CH_2N(C(O)OCH)$	Me	H	1	*
F72	$CF_2{=}CHCH_2CH_2N(C(O)OCH_2CH_3)$	Me	H	1	*
F73	CH_3NH	Me	H	1	*
F74	2-F-benzoyl-NH	Me	H	1	*
F75	$CH_3OC(O)NH$	Me	H	1	*
F76	$CH_3CH_2OC(O)NH$	Me	H	1	*
F77	CN	$CF_2{=}CH(CH_2)_4$-	H	3	*
F78	CN	$CH_2{=}CHCH_2$-	H	3	*
F79	$CH_3C(O)$	Me	H	3	*
F80	NH_2	Me	H	3	*

* See Index Table K for ^{1}H NMR data.

INDEX TABLE G

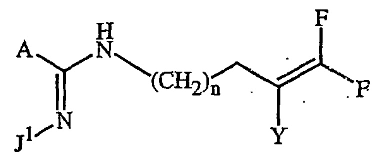


Compd. No.	J^1	A	n	Y	NMR
G1	OMe	$CONMe_2$	1	H	*
G2	OH	$CONMe_2$	1	H	*
G3	OCONEt	$CONMe_2$	1	H	*
G4	OCONEt	$CONMe_2$	1	H	*
G5	Ph	Me	1	H	*
G6	2,6-diF-Ph	Me	1	H	*
G7 (Ex. 11)	Ph	CN	1	H	*
G8	3-CF_3-Ph	CN	1	H	*
G9	2-F-Ph	CN	1	H	*
G10	2-F-Ph	Me	1	H	*
G11	Ph	CN	1	H	*
G12	Me	CN	1	H	*
G13	4-Cl-Ph	CN	1	H	*
G14	4-CF_3-Ph	CN	1	H	*
G15	2,6-diF-Ph	CN	1	H	*
G16	4-CN-Ph	CN	1	H	*
G17	4-F-Ph	CN	1	H	*
G18	4-OCF_3-Ph	CN	1	H	*
G19	*n*-Pr	CN	1	H	*
G20	2-Cl-Ph	CN	1	H	*
G21	3-pyridinyl	CN	1	H	*
G22	4-$SCHF_2$-Ph	CN	1	H	*
G23 (Ex. 8)	CO_2Et	OEt	1	H	mp 37-39°C
G24	CO_2Et	OMe	1	H	*
G25	CO_2Et	O-*i*-Pr	1	H	*
G26 (Ex.9)	CN	OMe	1	H	*
G27	CO_2Me	OEt	1	H	*
G28	CN	OMe	1	F	*
G29	CN	OEt	1	F	*
G30	CN	OEt	1	H	*
G31	COPh	OMe	1	H	*

Compd. No.	J^1	A	n	Y	NMR
G32	COPh	OEt	1	H	*
G33	COPh	O-*i*-Pr	1	H	*
G34	COPh	O-*n*-Pr	1	H	*
G35	COPh	OCH_2Ph	1	H	*
G36	CO-2,6-diF-Ph	OEt	1	H	*
G37	COPh	OEt	1	H	*
G38	2,6-diF-Ph	O-*i*-Pr	1	H	*
G39	2,6-diF-Ph	OMe	1	H	*
G40	2,6-diF-Ph	OEt	1	H	*
G41	CO_2Et	OEt	1	F	*
G42	COMe	OEt	1	H	*
G43	COMe	OEt	3	H	*
G44	CO_2Et	OEt	3	H	*

* See Index Table K for ^1H NMR data.

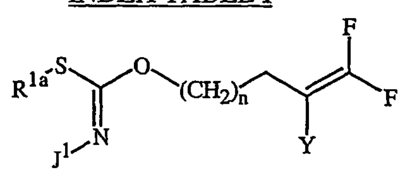
INDEX TABLE H



Compd. No.	J^1	A	n	Y	NMR
H1	CN	SMe	1	H	*
H3	CN	OMe	1	H	*
H5	CN	OPh	1	H	*
H6	CN	SEt	1	H	*

* See Index Table K for ^1H NMR data.

INDEX TABLE I

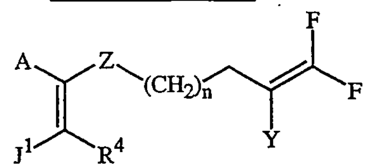


Compd. No.	J^1	R^{1a}	n	Y	NMR
I1	CO_2Et	Me	1	H	*
I2	CO_2Et	Et	1	H	*
I3	CO_2Et	*n*-Bu(2-Me)	1	H	*
I4	CO_2Et	*i*-Pr	1	H	*
I5	CO_2Et	CH_2-*c*-Pr	1	H	*

Compd. No.	J^1	R^{1a}	n	Y	NMR
I6	CO_2Et	*c*-pentyl	1	H	*
I7	CO_2Et	$CH_2CH_2O(C{=}O)Me$	1	H	*
I8	CO_2Et	CH_2CH_2COOMe	1	H	*
I9	CO_2Et	$CH_2CH_2NEt_2$	1	H	*
I10	CO_2Et	$(CH_2)_4Cl$	1	H	*

* See Index Table K for ^1H NMR data.

INDEX TABLE J



Compd. No.	J^1	R^4	A	Z	n	Y	NMR
J1	CN	CN	$SCH_2CH_2CF{=}CF_2$	S	1	F	*
J2	CN	CN	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J3	CN	H	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J4	CN	4-F-Ph	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J5	CN	Ph	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J6	NO_2	H	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J7	NO_2	H	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J8	NO_2	H	$SCH_2CH_2CH{=}CF_2$	S	1	H	*
J9	NO_2	H	1-pyrrolidine	S	1	H	*
J10	NO_2	H	SMe	NH	1	H	*

* See Index Table K for ^1H NMR data.

INDEX TABLE K

Compd. No.	^1H NMR Spectrum Data ($CDCl_3$ solution unless indicated otherwise)[a]
A1 (Ex. 1)	δ 7.0 (bm,4H), 4.0 (dt,1H), 3.1 (s,6H), 5 (b t,2H), 2.12 (m,2H).
A2 (Ex. 2)	δ 6.84 (m,3H), 4.72 (b s,1H), 4.17 (dt,1H), 2.95 (s,3H), 2.77 (bm,2H), 2.29 (b s,2H).
A3	δ 8.33 (d,1H), 7.54 (dt,1H), 6.84 (m,2H), 4.04 (dtd,1H), 3.16 (s,6H), 2.41 (t,2H), 2.14 (apparent q,2H).
A4	δ 4.42 (q,4H), 4.14 (dtd,1H), 3.18 (s,6H), 2.79 (t,2H), 2.25 (apparent q,2H), 1.39 (t,6H).
A5	δ 6.58 (s,1H), 4.08 (dt,1H), 3.17 (s,6H), 2.49, (t,2H), 2.40 (s,6H), 2.20 (q,2H).
A6	δ 6.55 (s, 1H), 4.06 (dt, 1H), 3.60 (q, 4H), 2.39, (m, 8H), 2.16 (q, 2H), 1.23 (t, 6H).
A7	δ 6.85 (m,3H), 4.04 (dt,1H), 3.60 (q,4H), 2.53, (t,2H), 2.13 (q,2H), 1.23 (t,3H).
A8	δ 6.85 (m,3H), 4.05 (dt,1H), 3.20 (s,6H), 2.62, (t,2H), 2.12 (q,2H).
A9	δ 7.88 (d,1H), 7.41 (t,1H), 7.00 (m,2H), 4.05, (dt,1H), 3.16 (s,6H), 2.53 (t,2H), 2.15 (q,2H).

A10	δ 7.04 (m,3H), 4.10 (bm,2H), 2.95 (m,2H), 2.78, (bm,2H), 2.27 (br q,2H), 1.45 (s,9H), 1.21 (d,6H), 1.13, (d,6H).
A11	δ 7.04 (m,3H), 4.12 (dt,1H), 3.01 (s,6H), 2.86, (m,2H), 2.74 (t,2H) 2.17 (q,2H), 1.19 (d,6H), 1.13, (d,6H).
A12	δ 7.34 (s,1H), 7.11 (d,1H), 6.82 (d,1H), 4.07, (dt,1H), 3.15 (s,6H), 2.51 (t,3H), 2.16 (q,2H).
A13	δ 7.25 (d, 2H), 6.83 (t, 1H), 4.10 (dt, 1H), 3.17, (s, 6H), 2.69 (t, 2H), 2.20 (q,2H).
A14	δ 7.27 (d,1H), 7.00 (s,1H), 6.75 (d,1H), 4.05 (dt,1H), 3.13 (s,6H), 2.43 (t,2H), 2.14 (q,2H).
A15	δ 7.44 (d,2H), 7.90 (d,2H), 6.75 (t, 1H; J=57 Hz.), 4.05 (dt,1H), 3.14 (s,6H), 2.39 (t,2H), 2.10 (q,2H).
A16	δ 7.28 (s,1H), 7.16 (d,1H), 6.64 (d,1H), 4.07 (dt,1H), 3.08 (s,6H), 2.53 (t,2H), 2.13 (q,2H), 1.17 (d,6H).
A17	δ 7.35 (d,1H), 7.14 (d,1H), 6.83 (t,1H), 4.12 (dt,1H), 3.09 (s,6H), 2.97 (m,1H), 2.76 (t,2H), 2.21 (q,2H), 1.19 (d,3H), 1.15 (d,3H).
A18	δ 7.24 (t,2H), 6.96 (t,1H), 6.90 (d,2H), 4.01 (dt,1H), 3.12 (s,6H), 2.38 (t,2H), 2.10 (q,2H).
A19	δ 7.33 (s,2H), 7.22 (m,1H), 7.08 (m,2H), 4.03 (dt,1H), 3.06 (m,1H), 2.88 (s,6H), 2.46 (m,1H), 2.34 (m,1H), 2.00 (q,2H), 1.21 (m,6H).
A20	δ 7.80 (d,1H), 7.78 (s,1H), 7.37 (t,1H), 7.21 (d,1H), 4.01 (dt,1H), 3.17 (s,6H), 2.41 (t,2H), 2.13 (q,2H).
A21	δ 8.13 (d,2H), 6.95 (d,2H), 4.03 (dt,1H), 3.17 (s,6H), 2.42 (t,2H), 2.14 (q,2H).
A23	δ 7.0 (d,2H), 6.81 (d,2H), 4.03 (dt,2H), 3.12 (s, 6H), 2.40 (t,2H), 2.10 (br q,2H).
A25	(DMSO-d_6) δ 7.52 (d,2H), 6.94 (d,2H), 4.33 (m,1H), 3.11 (s,6H), 2.49 (br t,2H), 2.08 (br q,2H).
A28	(DMSO-d_6) δ 7.66 (d,2H), 6.91 (d,2H), 4.35 (dt,2H), 3.11 (s,6H), 2.48 (t,2H), 2.08 (br q,2H).
A31	(DMSO-d_6) δ 7.04 (m,2H), 6.77 (m,2H), 4.36 (dt,1H), 3.06 (s,6H), 2.47 (t,2H), 2.06 (br q,2H).
A34	(DMSO-d_6) δ 7.35 (d,1H), 7.17 (t,1H), 6.94 (t,1H), 6.88 (d,1H), 4.32 (dt,1H), 3.08 (s,6H), 2.56 (t,2H), 2.11 (bm,2H).
A36	(DMSO-d_6) δ 7.05 (m,3H), 6.86 (m,2H), 6.93 (t, 1H, J = 75 Hz), 4.44 (dt,1H), 2.91 (t,2H), 2.83 (d,3H), 2.22 (q,2H).
A38	(Acetone-d_6) δ 7.12 (d,1H), 7.06 (t,1H), 6.87 (t,1H), 6.71 (d,1H), 5.79 (b s,1H), 4.37 (dt,1H), 2.91 (b s,5H), 2.31 (q,2H), 2.12 (s,3H).
A42	(Acetone-d_6) δ 6.8 (m,4H), 5.82 (dt,1H), 3.73 (s,3H), 2.96 (bm,2H), 2.84 (s,3H), 2.62 (bm,2H).

A43	δ 7.14 (t,1H), 6.92 (m,2H), 6.78 (d,1H), 4.02, (dt,1H), 3.10 (s,6H), 2.41 (t,2H), 2.11 (q,2H).
A45	7.8 (d,1H), 7.75 (m,1H), 7.37 (t,1H), 7.21, (d,1H), 4.03 (dt,1H), 3.17 (s,6H), 2.41 (t,2H), 2.13 (m,2H).
A46	δ 7.14 (t,1H), 6.5 (m,3H), 4.04 (dt,1H), 3.78 (s,3H), 3.12 (s,6H), 2.43 (t,2H), 2.12 (m,2H).
A47	δ 8.04 (s,1H), 7.97 (d,1H), 6.84 (d,1H), 4.05 (dt,1H), 3.15 (s,6H), 2.45 (t,2H), 2.23 (s,3H), 2.14 (m,2H).
B1	δ 8.53 (d,2H), 6.78 (t,1H), 4.10 (dt,1H), 3.74, (br d,4H), 2.50 (t,2H),2.21 (q,2H), 1.66 (bs,6H).
B2	δ 6.60 (s,1H), 4.12 (dt,1H), 3.69 (bm,4H), 2.54, (t,2H), 2.40 (s,6H), 2.22 (q,2H), 1.63 (br d,6H).
B3	δ 6.86 (m,3H), 4.08 (dt,1H), 3.67 (br t,4H), 2.63, (t,2H), 2.20 (q,2H), 1.65 (bm,6H).
B4	δ 6.86 (m,3H), 4.07 (dt,1H), 3.74 (m,8H), 2.62, (t,2H), 2.19 (q,2H).
B5	δ 7.92 (d,1H), 7.45 (t,1H), 7.07 (t,1H), 6.98, (d,1H), 4.08 (m,1H), 3.73 (m,8H), 2.56 (t,2H), 2.16, (q,2H).
B6	δ 6.65 (s,1H), 4.10 (dt,1H), 3.74s,8H), 2.52, (t,2H), 2.42 (s,6H), 2.21 (q,2H).
B7	δ 7.06 (m,3H), 4.11 (dt,1H), 3.77 (m,4H), 3.50, (m,4H), 2.81 (m,2H), 2.72 (t,2H), 2.18 (q,2H), 1.19, (d,6H), 1.13 (d,6H).
B8	δ 7.27 (d, 2H), 6.88 (t, 1H), 4.10 (dt, 1H), 3.74 (m, 8H), 2.68 (t, 2H), 2.20 (q,2H).
B9	δ 7.30 (d,1H), 7.00 (s,1H), 6.74 (d,1H), 4.07 (dt,1H), 3.73 (m,4H), 3.64 (m,4H), 246 (t,2H), 2.15 (q,2H).
B10	δ 7.47 (d,2H), 6.91 (d,2H), 6.76 (t,1H; J=57 Hz.), 4.01 (dt,1H), 3.73 (m,4H), 3.65 (m,4H), 2.41 (t,2H), 2.12 (q,2H).
B11	δ 7.37 (d,1H), 7.16 (d,1H), 6.88 (t,1H), 4.14 (dt,1H), 3.77 (m,4H), 3.62 (m,4H), 2.89 (m,1H), 2.75 (m,2H), 2.20 (m,2H), 1.20 (d,3H) 1.15 (d, 3H).
B12	δ 7.19 (s,1H), 7.12 (d,1H), 6.66 (d,1H), 4.00 (dt,1H), 3.67 (m,4H), 3.51 (m,4H), 2.93 (m,1H), 2.50 (t,2H), 2.08 (q,2H), 1.10 (d,6H).
C1 (Ex. 3)	δ 7.4 (m,1H), 7.24 (s,2H), 4.24 (dt,1H), 4.17 (t,2H), 2.39 (m,2H), 2.19 (s,3H).
C2	δ 8.29 (s,1H), 7.33 (d,2H), 7.19 (t,1H), 4.27 (dt,1H), 4.21 (t,2H), 2.43 (m,2H).
C3	δ 7.78 (m,2H), 7.46 (m,3H), 4.55 (t,2H), 2.85, 2.77 (m, 2H).
C4	δ 7.80 (m,2H), 7.46 (m,3H), 4.40 (t,2H), 4.34, 4.24 (m,1H), 2.48 (m,2H)
C5 (Ex. 4)	δ 4.23 (dt,1H), 4.15 (t,2H), 3.07 (d,6H), 2.36 (m,2H), 2.27 (s,3H).
C6	δ 8.4 (s, 1H), 7.21 (m, 2H), 7.15 (d t, 1H), 4.28 (d t, 1H), 4.2 (t, 2H), 2.4 (m, 2H).
C7	δ 7.75 (m, 2H), 7.45 (m, 3H), 4.35 (d t, 1H), 4.28 (t, 2H), 2.5 (m, 2H), 2.32 (s, 3H).
C8	δ 4.42 (m, 2H), 4.16 (t, 2H), 3.08 (s, 3H), 3.05 (s, 3H), 2.83 (t, 2H), 2.35 (m, 4H).
D1	δ 2.5 (4H), 3.26 (4H), 4.3 (2H).
D2 (Ex. 5)	δ 2.43 (2H), 2.66 (3H), 3.2 (2H), 4.2 (1H).

D3	δ 7.95 (m, 3H), 4.2 (m, 2H), 3.4 (m, 4H), 2.4 (m, 4H).
D4 (Ex. 6)	δ 8.57 (s, 1H), 7.94 (s, 1H), 4.25 (m, 2H), 3.2 (t, 4H), 2.45 (m, 4H).
D5	δ 8.70 (m, 2H), 7.05 (m, 1H), 4.2 (m, 2H), 3.2 (m, 4H), 2.4 (m, 4H).
E1	δ 7.35(s, 1H), 4.78(s, 2H), 4.18(dt, 1H), 3.00(s, 6H), 2.78(t, 2H), 2.25(q, 2H).
E2	δ 8.57(s, 2H), 8.49(s, 2H), 7.61(s, 2H), 7.25(m, 4H), 4.57(s, 2H), 4.20(dt, 1H), 2.90(t, 2H), 2.34(q, 2H).
E3	δ 7.24(m, 1H), 6.90(t, 2H), 4.24(dt, 1H), 3 30(s, 6H), 3.18(t, 2H), 2.39(q, 2H).
E4	δ 9.13 (s, 1H), 8.77 (d, 1H), 7.58 (d, 1H), 4.20 (dt, 1H), 3.29 (s, 6H), 3.12 (t, 2H), 2.37 (q, 2H).
E5	δ 7.0 (bm, 4H), 3.1 (s, 6H), 2.7 (b t, 2H), 2.5 (b m, 2H).
E6	δ 7.2 (d, 2H), 6.8 (d, 2H), 3.1 (s, 6H), 2.5 (b t, 2H), 2.4 (b m, 2H).
E7	(DMSO-d_6) δ 7.5 (d, 2H), 6.98 (d, 2H), 3.08 (s ,6H), 2.6 (t, 2H), 2.45 (bm, 2H).
E8	(DMSO-d_6) δ 7.6 (d, 2H), 7.0 (d, 2H), 3.09 (s, 6H), 2.6 (m, 2H), 2.5 (bm, 2H).
E9	(DMSO-d_6) δ 7.1 (m, 1H), 6.9 (m, 2H), 3.1 (s, 6H), 2.6 (t, 2H), 2.1 (bm, 2H).
E10	(DMSO-d_6) δ 7.1 (m, 2H), 6.8 (m, 2H), 3.1 (s, 6H), 2.6 (t, 2H), 2.1 (bm, 2H).
E11	(DMSO-d_6) δ 7.4 (d, 1H), 7.2 (m, 1H), 6.9 (b m, 2H), 3.08 (s, 6H), 2.7 (t, 2H), 2.6 (b m, 2H).
E12	(DMSO-d_6) δ 7.1 (m, 2H), 6.9 (b m, 4H), 3.06 (b t, 2H), 2.9 (d, 3H), 2.6 (b m, 2H).
E13	δ 6.8 (m, 3H), 4.8 (b s, 1H), 3.0 (m, 5H), 2.6 (b d, 2H).
E14	(Acetone-d_6) δ 7.1 (d, 1H), 7.04 (t, 1H), 6.85 (t, 1H), 6.7 (d, 1H), 5.7 (b s, 1H), 3.08 (t, 2H), 2.9 (d, 3H), 2.7 (m, 2H), 2.09 (s, 3H).
E15	(Acetone-d_6) δ 6.8 (m, 4H), 5.8 (m, 1H), 3.7 (s, 3H), 3.0 (b m, 2H), 2.8 (s, 3H), 2.6 (b m, 2H).
E16	δ 7.4 (s, 1H), 7.1 (d, 1H), 6.8 (d, 1H), 4.6 (b m, 1H), 3.0 (t, 2H), 2.9 (s, 3H), 2.7 (b m, 2H).
E17	δ 8.05 (m, 1H), 7.9 (d, 1H), 6.8 (d, 1H), 3.1 (s, 6H), 2.6 (t, 2H), 2.5 (m, 2H), 2.2 (s, 3H).
E18	δ 7.2 (t, 2H), 7.0 (t, 1H), 6.9 (d, 2H), 4.0 (d t, 1H), 3.1 (s, 6H), 2.4 (t, 2H), 2.1 (m, 2H).
E19	δ 7.2 (t, 1H), 7.0 (t, 1H), 6.9 (d, 1H), 3.1 (s, 6H), 2.5 (t, 2H), 2.4 (m, 2H), 3.1 (s, 6H), 2.5 (t, 2H), 2.4 (m, 2H).
E20	δ 7.2 (t, 1H), 6.9 (m, 2H), 6.8 (d, 1H), 3.1 (d t, 1H), 3.1 (s, 1H), 2.6 (t, 2H), 2.4 (m, 2H).
E21	δ 7.80 (m,2H), 7.46 (m,3H), 4.40 (t,2H), 4.34, 4.24 (two m,1H, 30Hz), 2.48 (m,2H).
E22	δ 7.1 (t, 1H), 6.5 (m, 2H), 3.8 (s, 3H), 3.1 (s, 6H), 2.6 (t, 2H), 2.4 (m, 2H).
E23	δ 8.1 (b s, 2H), 7.1 (b m, 2H), 4.0 (d t, 1H), 3.1 (s, 2H), 2.1 (b t, 2H), 2.1 (b q, 2H).
E24	δ 7.23 (t, 2H), 7.0 (t, 1H), 6.9 (d, 2H), 4.0 (d t, 1H), 3.1 (s, 6H), 2.4 (t, 2H), 2.1 (m, 2H).
E25	δ 8.0 (d, 1H), 7.8 (d, 1H), 7.4 (b m, 4H), 6.9 (d , 1H), 3.7 (d t, 1H), 3.2 (s, 6H), 2.3 (t, 2H), 2.0 (q, 2H).

E26	δ 8.0 (d d, 1H), 7.8 (d d, 1H), 7.4 (b m, 4H), 6.9 (d d , 1H), 3.2 (s, 6H), 2.3 (t, 2H), 1.6 (b m, 2H).
E27	δ 7.3 (d, 1H), 7.0 (d, 1H), 6.7 (d d, 1H), 4.5 (d t ,1H), 3.1 (s, 6H), 2.4 (t, 2H), 2.1 (q, 2H).
E28	δ 7.2 (d, 1H), 6.9 (d, 1H), 6.7 (d d, 1H), 3.0 (s, 6H), 2.5 (b t, 2H), 2.2 (d m, 2H).
E29	δ 7.3 (t, 1H), 7.15 (b d, 1H), 7.1 (m, 1H), 7.05 (d m , 1H), 4.0 (d t, 1H), 3.1 (s, 6H), 2.3 (t, 2H), 2.1 (q, 2H).
E30	δ 7.3 (t, 1H), 7.2 (d m, 1H), 7.18 (m, 1H), 7.15 (d m, 1H), 3.1 (s, 6H), 2.55 (b t, 2H), 2.4 (d m, 2H).
E31	δ 7.0 (b m, 4H), 4.6 (b s, 1H), 4.2 (d t, 1H), 3.0 (s, 3H), 2.8 (b s, 2H), 2.3 (m, 2H).
E32	δ 4.2 (d t, 1H), 4.0 (m, 1H), 2.9 (s, 6H), 2.7 (t, 2H), 2.2 (q, 2H), 1.8 (m, 4H), 1.6 (m, 2H), 1.4 (m, 2H).
E33	δ 7.8 (d, 1H), 7.25 (d, 2H), 4.0 (d t, 1H), 3.2 (s , 6H), 2.4 (t, 2H), 2.2 (q, 2H).
E34	δ 7.8 (d, 1H), 7.25 (d, 2H), 3.2 (s , 6H), 2.6 (t, 2H), 2.5 (d q, 2H).
E35	δ 7.8 (d, 1H), 7.25 (d, 2H), 4.0 (d t, 1H), 3.2 (s , 6H), 2.4 (t, 2H), 2.2 (q, 2H).
E36	δ 6.75 (d, 1H), 6.44 (d, 1H), 6.38 (d d, 1H), 4.2 (s, 4H), 4.05 (d t, 1H), 3.05 (s, 6H), 2.4 (t, 2H), 2.1 (q, 2H).
E37	δ 7.13 (d, 1H), 7.6 (d, 1H), 4.0 (d t, 1H), 3.7 (s, 3H), 3.1 (s, 6H), 2.5 (t, 2H), 2.1 (q, 2H).
E38	δ 7.13 (d, 1H), 7.6 (d, 1H), 3.7 (s, 3H), 3.1 (s, 6H), 2.5 (t, 2H), 2.1 (q, 2H).
E39	δ 7.0 (m, 4H), 4.8 (b m, 2H), 4.3 (d t, 1H), 3.1 (t, 2H), 2.4 (q, 2H).
E40	($DMSO-d_6$) δ 8.62 (b s, 1H), 4.46 (ddt, 1H), 3.24 (t, 2H), 3.12 (t, 2H), 2.31 (q, 2H), 1.90 (m, 1H), 0.85 (d, 6H).
E41	δ 4.24 (ddt, 1H), 3.41 (t, 2H), 3.38 (s, 6H), 2.41 (q, 2H).
E42	δ 7.80 (b s, 1H), 4.22 (ddt, 1H), 3.04 (t, 2H), 2.60 (b s, 1H), 2.37 (q, 2H), 0.82 (m, 4H).
E43	δ 7.30 (m, 2H), 7.15 (m, 2H), 4.58 (b s, 2H), 4.20 (m, 1H), 3.10 (b s, 2H), 3.37 (m, 2H).
E44	δ 4.60 (b d, 2H), 4.23 (ddt, 1H), 3.38 (t, 2H), 3.03 (b t, 2H), 2.40 (q, 2H), 1.75 (m, 3H), 1.20 (m, 2H), 0.98 (d, 3H).
E45	δ 5.82 (b s, 1H), 4.24 (ddt, 1H), 3.18 (t, 2H), 2.40 (q, 2H), 1.43 (s, 9H).
E46	δ 4.23 (ddt, 1H), 3.78 (b s, 2H), 3.60 (b s, 2H), 3.33 (t, 2H), 2.40 (apparent q, 2H), 2.00 (m, 4H).
E47	δ 4.24 (ddt, 1H), 3.67 (q, 2H), 3.42 (t, 2H), 3.21 (s, 3H), 2.40 (q, 2H), 1.22 (t, 3H).
E48	δ 6.50 (b s, 1H), 4.23 (b dt, 1H), 3.92 (b s, 1H), 3.11 (b s, 2H), 2.38 (q, 2H), 1.27 (d, 6H).
E49	δ 4.23 (ddt, 1H), 3.87 (m, 4H), 3.73 (m, 4H), 3.43 (t, 2H), 2.42 (q, 2H).
E50	δ 4.23 (ddt, 1H), 3.82 (m, 4H), 3.38 (t, 2H), 2.40 (q, 2H), 1.65 (m, 6H).
E51	δ 6.92 (b s, 1H), 4.24 (b dt, 1H), 3.39 (b s, 2H), 3.09 (b s, 2H), 2.39 (m, 2H), 1.27 (t, 3H).
E52	δ 7.42 (b s, 1H), 4.23 (b dt, 1H), 3.08 (b s, 2H), 2.98 (d, 3H), 2.39 (apparent q, 2H).
E53	δ 3.55 (t, 2H), 3.27 (s, 6H), 2.73 (m, 2H).
E54	δ 4.60 (b d, 2H), 3.53 (t, 2H), 3.03 (b t, 2H), 2.72 (m, 2H), 1.72 (m, 3H), 1.10 (m, 2H), 0.98 (d, 3H).
E55	δ 7.30 (b s, 1H), 3.21 (b s, 2H), 3.13 (b s, 2H), 2.72 (m, 2H), 1.94 (m, 1H), 0.96 (d, 6H).

E56	δ 7.60 (b s, 1H), 7.31 (m, 2H), 7.15 (m, 2H), 4.57 (d, 2H), 3.24 (b s, 2H), 2.72 (m, 2H).
E57	δ 7.40 (m, 5H), 4.18 (apparent dt, 1H), 3.04 (apparent t, 2H), 2.34 (apparent q, 2H).
E58	δ 8.60 (b s, 1H), 7.19 (d, 2H), 6.91 (d, 2H), 4.18 (ddt, 1H), 3.83 (s, 3H), 3.00 (t, 2H), 2.33 (q, 2H).
E59	δ 8.70 (b s, 1H), 7.40 (m, 2H), 7.20 (m, 2H), 4.16 (apparent dt, 1H), 3.06 (apparent t, 2H), 2.36 (apparent q, 2H).
E60	δ 8.82 (b s, 1H), 7.40 (m, 1H), 6.95 (m, 2H), 4.18 (ddt, 1H), 3.05 (t, 2H), 2.35 (q, 2H).
E61	δ 8.42 (b s, 1H), 7.50 (m, 2H), 7.33 (m, 2H), 4.20 (ddt, 1H), 3.09 (t, 2H), 2.38 (q, 2H).
E62	δ 8.38 (b s, 1H), 7.40 (m, 3H), 4.18 (ddt, 1H), 3.05 (t, 2H), 2.36 (q, 2H).
E63	δ 9.00 (b s, 1H), 7.38 (t, 2H), 7.24 (d, 2H), 4.18 (ddt, 1H), 3.05 (t, 2H), 2.35 (q, 2H).
E64	δ 4.23 (ddt, 1H), 3.60 (m, 4H), 3.42 (t, 2H), 2.62 (m, 2H), 2.54 (q, 4H), 2.40 (q, 2H), 1.22 (t, 3H), 1.02 (t, 6H).
E65	δ 4.24 (ddt, 1H), 3.71 (t, 2H), 3.42 (t, 2H), 3.25 (s, 3H), 2.50 (t, 2H), 2.41 (q, 2H), 2.27 (s, 6H).
E66	δ 4.24 (ddt, 1H), 3.88 (apparent t, 4H), 3.40 (t, 2H), 2.45 (apparent t, 4H), 2.41 (apparent q, 2H), 2.32 (s, 3H).
E67	δ 7.34 (m, 3H), 7.20 (m, 2H), 4.91 (s, 2H), 4.22 (ddt, 1H), 3.63 (t, 2H), 3.47 (t, 2H), 2.49 (t, 2H), 2.42 (q, 2H), 2.23 (s, 6H).
E68	δ 4.23 (ddt, 1H), 3.60 (apparent t, 4H), 3.43 (t, 2H), 2.40 (q, 2H), 2.27 (t, 4H), 2.21 (s, 12H), 1.77 (m, 4H).
E69	δ 4.46 (m, 1H), 4.22 (m, 1H), 3.60-3.90 (m, 2H), 3.45 (b t, 2H), 1.90-2.50 (m, 6H), 1.48 (s, 9H).
E70	δ 4.23 (b dt, 1H), 4.22 (d, 1H), 3.48 (s, 3H), 3.44 (s, 3H), 3.11 (t, 2H), 2.40 (q, 2H), 1.22 (d, 3H).
E71	δ 4.3 (m, 1H), 3.7 (m, 2H), 3.4 (m, 2H), 3.2 (m, 5H), 3.0 (s, 3H), 2.4 (m, 2H), 1.3 (t, 2H).
E72	δ 8.0 (br, 1H), 4.3 (m, 1H), 3.3 (m, 2H), 3.1 (m, 2H), 3.0 (s, 3H), 2.4 (m, 2H), 1.3 (t, 3H).
E73	δ 8.2 (br, 1H), 8.0-7.6 (m, 5H), 4.2 (m, 1H), 3.6 (m, 2H), 3.0 (m, 2H), 2.4 (m, 2H), 1.3 (t, 3H).
E74	δ 8.0-7.6 (m, 5H), 4.2 (m, 1H), 3.6 (m, 2H), 3.2 (s, 3H), 3.0 (m, 2H), 2.4 (m, 2H), 1.3 (t, 3H).
E75	δ 4.3 (m, 1H), 3.7 (s, 3H), 3.5 (m, 2H), 3.2 (s, 3H), 2.9 (q, 2H), 2.4 (m, 2H), 1.3 (t, 3H).
E76	δ 9.8 (br, 1H), 4.3 (m, 1H), 3.8 (s, 3H), 3.5 (m, 2H), 3.2 (m, 2H), 2.4 (m, 2H), 1.3 (t, 3H).
E77	δ 9.8 (br, 1H), 4.3 (m, 1H), 4.2 (m, 2H), 3.5 (m, 2H), 3.2 (t, 2H), 2.4 (m, 2H), 1.3 (m, 6H).
E78	δ 4.3 (m, 1H), 4.2 (m, 2H), 3.6 (m, 2H), 3.1 (s, 3H), 2.9 (2H), 2.4 (m, 2H), 1.3 (t, 3H), 1.2 (t, 3H).
E79	2:1 syn/anti mixture: δ 7.6-6.9 (m, 9H), 4.4-4.0 (m, 2H), 3.1 (2 x m, 1H), 2.7 and 2.4 (2 x m, 2H), 1.5-1.3 (2 x s, 9H), 1.2 and 1.1 (2 x d, 6H).
E80	δ 8.11(d, 2H), 7.43(m, 3H), 4.12(dt, 1H), 3.20(s, 6H), 2.97(t, 2H), 2.33(q, 2H).
E81	δ 4.22(dt, 1H), 4.03(m, 1H), 2.88(s, 6H), 2.74(t, 2H), 2.24(q, 2H), 1.76(bm, 4H), 1.57(bm, 2H), 1.43(bm, 2H).
E82	δ 4.10(dt, 1H), 3.52(bm, 1H), 2.88(s, 6H), 2.74(t, 2H), 2.24(q, 2H), 1.75(bm, 2H), 1.58(bm, 3H), 1.30(bm, 5H).
E83	δ 7.30(m, 5H), 4.75(s, 2H), 4.17(dt, 1H), 3.00(s, 6H), 2.77(t, 2H), 2.24(q, 2H).

E84	δ 7.25 (d, 1H), 7.0 (s, 1H), 6.7 (d, 1H), 3.1 (s, 6H), 2.4 (t, 2H), 2.4 (d m, 2H).
E85	δ 4.15 (ddt, 1H), 3.67 (q, 2H), 3.36 (t, 2H), 3.19 (s, 3H), 2.02 (q, 2H), 1.70 (m, 2H), 1.51 (m, 2H), 1.22 (t, 3H).
E86	δ 4.14 (ddt, 1H), 3.36 (t, 2H), 3.25 (s, 6H), 2.02 (q, 2H), 1.71 (m, 2H), 1.51 (m, 2H).
E87	δ 7.20 (b s, 1H), 4.14 (ddt, 1H), 3.04 (b s, 2H), 2.98 (d, 3H), 2.01 (q, 2H), 1.70 (m, 2H), 1.50 (m, 2H).
F1	δ 4.2 (m, 1H), 3.2 (m, 2H), 2.66 (s, 3H), 2.43 (m, 2H).
F2	1:1 mixture of syn/anti isomers: δ 4.2 (m, 1H), 3.1 (m, 1H), 3.0 (m, 1H), 2.5 (s, 6H), 2.5 (m, 2H), 2.4 (m, 3H), 2.3 (m, 2H).
F3	1:1 mixture of syn/anti isomers: δ 4.2 (m, 2H), 3.2 (m, 2H), 3.1 and 2.9 (m, 2H), 2.5 and 2.3 (2 x s, 3H), 2.4 and 2.2 (m, 2H), 0.8 (m, 4H).
F4	1:1 mixture of syn/anti isomers: δ 6.0 (m, 1H), 5.3 and 5.1 (m, 2H), 4.3 (m, 1H), 4.1 (m, 2H), 3.1 (m, 2H), 2.5 and 2.4 (2 x s, 3H), 2.4 (m, 2H).
F5	3:2 mixture of syn/anti isomers: δ 7.3 (m, 5H), 4.6 (m, 2H), 4.3 (m, 1H), 3.2 (m, 2H), 2.5 and 2.4 (2 x s, 3H), 2.4 (m, 2H).
F6	55:45 mixture of syn/anti isomers: δ 5.9(m, 1H), 5.1 (m, 2H), 4.2 (m, 2H), 3.7 and 3.5 (m, 2H),3.3-2.9 (m, 3H), 2.4 and 2.3 (m, 2H), 0.8 (m, 4H).
F7	3:2 mixture of syn/anti isomers: δ 4.2 (m, 1H), 3.3 (m, 1H), 3.1 and 2.9 (m, 2H), 2.4 and 2.3 (m, 2H), 1.3 and 1.2 (2 t, 3H), 0.8 (m, 4H).
F8	1:1 mixture of syn/anti isomers: δ 4.2 (m, 1H), 3.9 (m, 2H), 3.1 and 3.0 (2 x m, 2H), 2.5 and 2.4 (2 x s, 3H), 2.4 (m, 2H), 1.3 (m, 6H).
F9	60:40 mixture of syn/anti isomers: δ 4.2 (m, 1H), 3.2 (2 x d, 2H), 3.1 and 3.0 (2 x m, 2H), 2.5 and 2.4 (2 x s, 3H), 2.4 (m, 2H), 1.9 (m, 1H), 1.0 (m, 6H).
F10	1:1 mixture of syn/anti isomers: δ 4.2 (m, 1H), 3.4 and 3.3 2 x m, 2H), 3.1 and 3.0 (2 x t, 2H), 2.5 and 2.3 (2 x s, 3H), 2.3 (m, 2H), 1.1 (m, 1H), 0.5 and 0.3 (2 x m, 4H).
F11	1:1 mixture of syn/anti isomers: δ 4.2 (m, 1H), 3.4 (m, 2H), 3.1 and 3.0 (2 x m, 2H), 2.5 and 2.3 (2 x s, 3H), 2.3 (m, 2H), 1.2 (m, 3H).
F12	δ 7.35 (m, 5H), 4.41 (s, 2H), 4.21 (ddt, 1H), 3.20 (t, 2H), 2.41 (q, 2H).
F13	δ 5.86 (m, 1H), 5.38 (d, 1H), 5.29 (d, 1H), 4.24 (ddt, 1H), 3.86 (d, 2H), 3.23 (t, 2H), 2.44 (q, 2H).
F14	δ 7.32 (m, 2H), 7.10 (m, 1H), 6.82 (m, 2H), 3.28 (m, 2H), 2.72 (m, 2H), 2.51 (s, 3H).
F15	δ 7.4 – 7.1 (m, 4H), 4.12 (m, 1H), 3.70 (t, 2H), 2.55 (s, 3H), 2.30 (m, 2H).
F16	δ 7.32 (m, 2H), 7.13 (m, 1H), 6.84 (m, 2H), 4.23 (m, 1H), 3.09 (m, 2H), 2.49 (s, 3H), 2.38 (m, 2H).
F17	δ 4.23 (ddt, 1H), 3.20 (m, 4H), 2.44 (q, 2H), 1.42 (t, 3H).
F18	δ 4.23 (ddt, 1H), 3.98 (m, 1H), 3.20 (t, 2H), 2.43 (q, 2H), 2.24 (m, 2H), 2.08 (m, 1H), 1.70 (m, 5H).
F19	δ 4.25 (ddt, 1H), 3.73 (s, 3H), 3.43 (t, 2H), 3.24 (t, 2H), 2.80 (t, 2H), 2.45 (q, 2H).
F20	δ 5.27 (t, 1H), 4.24 (ddt, 1H), 3.84 (d, 2H), 3.22 (t, 2H), 2.43 (q, 2H), 1.77 (s, 3H), 1.73 (s, 3H).

F21	δ 4.26 (ddt, 1H), 3.96 (s, 2H), 3.32 (t, 2H), 2.50 (q, 2H).
F22	δ 4.23 (ddt, 1H), 3.27 (d, 2H), 3.20 (t, 2H), 2.54 (m, 1H), 2.42 (q, 2H), 1.96 (m, 2H), 1.90 (m, 2H), 1.76 (m, 2H).
F23	δ 4.25 (m, 3H), 3.86 (s, 2H), 3.28 (t, 2H), 2.48 (q, 2H), 1.31 (t, 3H).
F24	δ 4.23 (ddt, 1H), 3.96 (m, 1H), 3.20 (t, 2H), 2.43 (q, 2H), 1.45 (d, 2H).
F25	δ 4.24 (ddt, 1H), 3.22 (t, 2H), 3.16 (d, 2H), 2.42 (apparent q, 2H), 1.12 (m, 1H), 0.70 (m, 2H), 0.35 (m, 2H).
F26	δ 8.21 (d, 2H), 7.56 (d, 2H), 4.50 (s, 2H), 4.23 (ddt, 1H), 3.25 (t, 2H), 2.44 (q, 2H).
F27	δ 7.33 (m, 1H), 6.95 (apparent t, 2H), 4.50 (s, 2H), 4.23 (ddt, 1H), 3.25 (t, 2H), 2.45 (apparent q, 2H).
F28	δ 4.24 (ddt, 1H), 3.76 (s, 3H), 3.25 (t, 2H), 2.46 (q, 2H), 1.70 (s, 6H).
F29	δ 4.23 (m, 1H), 3.08 (t, 2H), 2.50 (s, 3H), 2.38 (s, 2H), 2.25 (s, 3H).
F30	1:1 mixture of syn/anti isomers: δ 4.3 and 4.2 (m, 1H), 3.9 and 3.7 (m, 1H), 3.1 and 2.9 (m, 2H), 2.4 (s, 6H), 2.4 (m, 2H), 1.3 (m, 6H).
F31	δ 7.40 (m, 4H), 4.16 (ddt, 1H), 3.05 (t, 2H), 2.30 (q, 2H).
F32	δ 7.50 (m, 5H), 4.14 (ddt, 1H), 3.02 (t, 2H), 2.26 (q, 2H).
F33	δ 7.40 (m, 4H), 4.14 (ddt, 1H), 3.00 (t, 2H), 2.48 (s, 3H), 2.29 (q, 2H).
F34	δ 7.52 (m, 3H), 4.16 (ddt, 1H), 3.06 (t, 2H), 2.34 (q, 2H).
F35	δ 7.60 (apparent d, 1H), 7.44 (apparent d, 1H), 7.26 (m, 2H), 4.32 (ddt, 1H), 3.34 (t, 2H), 2.56 (q, 2H).
F36	δ 7.87 (d, 1H), 7.76 (d, 1H), 7.42 (t, 1H), 7.30 (t, 1H), 4.32 (ddt, 1H), 3.39 (t, 2H), 2.54 (q, 2H).
F37	δ 4.21 (m, 2H), 3.40 (m, 2H), 3.00 (m, 2H), 2.54 (s, 3H), 2.32 (m, 4H).
F38	δ 5.90 (m, 1H), 5.20 (m, 2H), 4.23 (m, 1H), 3.69 (dd, 2H), 3.44 (m, 2H).
F39	δ 8.09 (m, 2H), 7.51 (m, 3H), 4.27 (m, 1H), 3.19 (t, 2H), 2.58 (s, 3H), 2.44 (m, 2H).
F40	δ 4.23 (m, 1H), 3.07 (t, 2H), 2.53 (s, 3H), 2.52 (q, 2H), 2.37 (m, 2H), 1.16 (t, 3H).
F41	δ 8.1 (m, 2H), 7.5 (m, 4H), 4.2 (m, 1H), 3.1 (m, 2H), 2.6 (s, 3H), 2.4 (m, 2H).
F42	δ 8.0-7.2 (m, 10H), 4.4 (m, 2H), 4.2 (m, 1H), 3.2 (m, 4H), 2.4 (m, 2H), 1.4 (t, 3H).
F43	δ 8.0-7.6 (m, 5H), 4.2 (m, 1H), 3.8 (s, 2H), 3.2 (m, 2H), 2.4 (m, 2H).
F44	δ 8.0-7.6 (m, 5H), 4.2 (m, 1H), 3.8 (s, 2H), 3.6 (s, 3H), 3.2 (m, 2H), 2.4 (m, 2H).
F45	δ 8.0-7.2 (m, 10H), 4.4 (m, 2H), 4.2 (m, 1H), 3.2 (m, 2H), 2.4 (m, 2H).
F46	δ 8.0-7.6 (m, 5H), 4.2 (m, 2H), 3.2 (m, 4H), 2.4 (m, 4H).
F47	δ 7.3 (m, 5H), 4.4 (s, 3H), 4.3 (m, 1H), 3.8 (m, 2H), 3.2 (m, 2H), 2.4 (m, 2H).
F48	δ 4.3 (m, 1H), 3.2 (m, 5H), 2.7 (s, 3H), 2.4 (m, 2H).
F49	δ 4.3 (m, 1H), 3.9 (m, 1H), 3.2 (m, 5H), 2.4 (m, 2H), 1.4 (d, 6H).
F50	δ 4.3 (m, 1H), 3.9 (s, 2H), 3.2 (m, 5H), 2.4 (m, 2H).
F51	δ 4.3 (m, 1H), 3.9 (s, 2H), 3.7 (s, 3H) 3.2 (m, 2H), 3.1 (s, 3H), 2.4 (m, 2H).
F52	δ 4.3 (m, 2H), 3.2 (m, 7H), 2.4 (m, 4H).
F53	δ 8.0-7.6 (m, 5H), 4.2 (m, 1H), 3.9 (m, 1H), 3.2 (m, 2H), 2.4 (m, 2H), 1.3 (d, 6H).
F54	δ 8.0-7.6 (m, 5H), 4.2 (m, 1H), 3.6 (m, 1H), 3.2 (m, 2H), 2.4 (m, 2H), 2.0-1.2 (m, 10H).

F55	δ 7.3 (m, 5H), 4.3 (s, 2H), 4.2 (m, 3H), 3.8 (m, 3H), 3.2 (m, 2H), 2.4 (m, 2H), 1.3 (t, 3H).
F56	δ 4.2 (m, 1H), 3.8 (s, 3H), 3.2 (m, 4H), 2.4 (m, 2H), 1.4 (t, 3H).
F57	δ 7.3 (m, 5H), 4.4 (m, 2H), 4.2 (s, 3H), 3.2 (m, 2H), 2.4 (m, 2H).
F58	δ 4.3 (m, 2H), 3.8 (s, 3H), 3.2 (m, 4H), 2.4 (m, 4H).
F59	δ 4.3 (m, 4H), 3.2 (m, 4H), 2.4 (m, 4H), 1.3 (t, 3H).
F60	δ 4.2 (m, 1H), 3.9 (m, 1H), 3.8 (s, 3H), 3.1 (m, 2H), 2.4 (m, 2H), 1.4 (d, 6H).
F61	δ 4.2 (m, 1H), 3.9 (s, 2H), 3.8 (s, 3H), 3.7 (s, 3H), 3.2 (m, 2H), 2.4 (m, 2H).
F62	δ 4.2 (m, 3H), 3.1 (m, 2H), 2.5 (s, 3H), 2.4 (m, 2H), 1.3 (t, 3H).
F63	δ 4.2 (m, 3H), 3.1 (m, 4H), 2.4 (m, 2H), 1.3 (m, 6H).
F64	δ 4.2 (m, 3H), 3.9 (m, 1H), 3.1 (m, 2H), 2.4 (m, 2H), 1.4 (m, 9H).
F65	δ 4.18 (m, 1H), 3.07 (t, 2H), 2.63 (s, 3H), 2.37 (m, 2H), 2.36 (s, 6H).
F66	δ 9.04 (bs, 1H), 4.22 (m, 1H), 3.02 (t, 2H), 2.44 (s, 3H), 2.37 (m, 2H), 2.27 (s, 3H).
F67	δ 4.27 (m, 1H), 3.28 (s, 3H), 2.94 (t, 2H), 2.46 (m, 2H), 2.44 (s, 3H).
F68	δ 5.68 (bs, 2H), 4.25 (m, 1H), 2.97 (t, 2H), 2.39 (s, 3H), 2.34 (m, 2H).
F69	δ 5.82 (bs, 1H), 4.18 (m, 2H), 3.24 (t, 2H), 2.95 (t, 2H), 2.39 (s, 3H), 2.27 (m, 4H).
F70	δ 4.18 (m, 2H), 3.24 (s, 3H), 3.21 (t, 2H), 2.90 (t, 2H), 2.33 (s, 3H), 2.25 (m, 4H).
F71	δ 4.20 (m, 2H), 3.70 (s, 3H), 3.20 (t, 2H), 2.85 (t, 2H), 2.31 (s, 3H), 2.20 (m, 4H).
F72	δ 4.35 (q, 2H), 4.21 (m, 2H), 3.21 (t, 2H), 2.89 (t, 2H), 2.41 (s, 3H), 2.25 (m, 4H), 1.52 (t, 3H).
F73	δ 5.10 (bs, 1H), 4.21 (m, 1H), 2.90 (t, 2H), 2.33 (s, 3H), 2.35 (m, 2H).
F74	δ 7.60 – 7.08 (m, 5H), 4.25 (m, 1H), 2.95 (t, 2H), 2.41 (s, 3H), 2.31 (m, 2H).
F75	δ 7.20 (bs, 1H), 4.22 (m, 1H), 3.79 (s, 3H), 2.99 (t, 2H), 2.41 (s, 3H), 2.35 (m, 2H).
F76	δ 7.50 (bs, 1H), 4.31 (q, 2H), 4.20 (m, 1H), 2.89 (t, 2H), 2.35 (s, 3H), 2.30 (m, 2H), 1.45 (t, 3H).
F77	δ 4.13 (ddt, 2H), 3.17 (t, 4H), 2.02 (q, 4H), 1.74 (m, 4H), 1.50 (m, 4H).
F78	δ 5.86 (m, 1H), 5.37 (d, 1H), 5.28 (d, 1H), 4.12 (ddt, 1H), 3.84 (d, 2H), 3.18 (t, 2H), 2.02 (q, 2H), 1.74 (m, 2H), 1.50 (m, 2H).
F79	δ 4.15 (m, 1H), 3.02 (t, 2H), 2.49 (s, 3H), 2.22 (s, 3H), 2.00 (m, 2H), 1.69 (m, 2H), 1.50 (m, 2H).
F80	δ 5.65 (bs, 2H), 4.25 (m, 1H), 3.01 (t, 2H), 2.35 (s, 3H), 2.01 (m, 2H), 1.65 (m, 2H), 1.45 (m, 2H).
G1	δ 4.23 (m, 1H), 3.98 (s, 3H), 3.09 (s, 3H), 3.05 (s, 3H), 2.81 (t, 2H), 2.31 (m, 2H).
G2	δ 8.55 (bs, 1H), 4.23 (m, 1H), 3.08 (s, 3H), 3.05 (s, 3H), 2.85 (t, 3H), 2.32 (m, 2H).
G3	δ 5.87 (bs, 1H), 4.18 (m, 1H), 3.35 (m, 2H), 3.08 (d, 6H), 2.86 (t, 2H), 2.33 (m, 2H), 1.19 (t, 3H).
G4	δ 10.17 (bs, 1H), 4.20 (m, 1H), 3.10 (s, 3H), 3.06 (t, 2H), 2.94 (s, 3H), 2.91 (s, 3H), 2.4 (m, 2H).

G5	δ 7.30 (m, 2H), 7.06 (m, 1H), 6.70 (m, 2H), 4.27 (m, 1H), 3.07 (t, 2H), 2.39 (m, 2H), 1.98 (s, 3H).
G6	δ 6.93 – 6.69 (m, 3H), 4.23 (m, 1H), 3.07 (t, 2H), 2.40 (m, 2H), 2.00 (s, 3H).
G7 (Ex. 11)	δ 7.40 (m, 2H), 7.27 (m, 1H), 7.06 (m, 2H), 4.23 (m, 1H), 3.25 (t, 2H), 2.45 (m, 2H).
G8	δ 7.54 (m, 2H), 7.25 (m, 2H), 4.27 (m, 1H), 3.25 (t, 2H), 2.46 (m, 2H).
G9	δ 7.27 – 6.98 (m, 4H), 4.23 (m, 1H), 3.28 (t, 2H), 2.48 (m, 2H).
G10	δ 7.05 (m, 3H), 6.79 (m, 1H), 4.25 (m, 1H), 3.07 (t, 2H), 2.41 (m, 2H), 2.02 (s, 3H).
G11	δ 7.39 (m, 2H), 7.27 (m, 1H), 7.06 (m, 2H), 4.23 (m, 1H), 3.24 (t, 2H), 2.48 (m, 2H).
G12	δ 4.22 (m, 1H), 3.58 (s, 3H), 3.06 (t, 2H), 2.32 (m, 2H).
G13	δ 7.69 (m, 2H), 7.11 (m, 2H), 4.23 (m, 1H), 3.26 (t, 2H), 2.48 (m, 2H)
G14	δ 7.40 (m, 2H), 7.01 (m, 2H), 4.23 (m, 1H), 3.24 (t, 2H), 2.46 (m, 2H).
G15	δ 7.16 (m, 1H), 7.01 (m, 2H), 4.28 (m, 1H), 3.31 (t, 2H), 2.49 (m, 2H).
G16	δ 7.73 (m, 2H), 7.08 (m, 2H), 4.25 (m, 1H), 3.29 (t, 2H), 2.46 (m, 2H).
G17	δ 7.66 (m, 2H), 7.10 (m, 2H), 4.27 (m, 1H), 3.23 (t, 2H), 2.48 (m, 2H).
G19	δ 7.25 (m, 2H), 7.11 (m, 2H), 4.23 (m, 1H), 3.26 (m, 2H), 2.44 (m, 2H).
G19	δ 4.22 (m, 1H), 3.74 (t, 2H), 3.07 (t, 2H), 2.41 (m, 2H), 1.71 (m, 2H), 0.98 (t, 3H).
G20	δ 7.52 – 6.74 (m, 4H), 4.28 (m, 1H), 3.28 (t, 2H), 2.49 (m, 2H).
G21	δ 8.53 (m, 1H), 8.38 (s, 1H), 7.34 (m, 2H), 4.23 (m, 1H), 3.28 (m, 2H), 2.48 (m, 2H).
G22	δ 7.62 (m, 2H), 7.08 (m, 2H), 7.00 (m, 1H), 4.27 (m, 1H), 3.24 (m, 2H), 2.44 (m, 2H).
G24	δ 4.98 (s, 3H), 4.30-4.16 (m, 3H), 2.97 (t, 2H), 2.40 (m, 2H), 1.30 (t, 3H).
G25	δ 5.41 (m, 1H), 4.30-4.16 (m, 3H), 2.91 (t, 2H), 2.35 (m, 2H), 1.37-1.31 (m, 9H).
G26 (Ex.9)	δ 4.23 (dt, 1H), 4.04 (s, 3H), 3.09 (t, 2H), 2.39 (q, 2H).
G27	δ 4.43 (q, 2H), 4.31-4.15 (m, 1H), 3.79 (s, 3H), 2.95 (t, 2H), 2.36 (m, 2H), 1.38 (t, 3H).
G28	δ 4.06 (s, 3H), 3.24 (t, 2H), 2.70 (m, 2H).
G29	δ 4.48 (q, 2H), 3.23 (t, 2H), 2.70 (m, 2H), 1.42 (t, 3H).
G30	δ 4.47 (q, 2H), 4.23 (ddt, 1H), 3.05 (t, 2H), 2.40 (q, 2H), 1.41 (t, 3H).
G31	δ 8.16 (d, 2H), 7.53 (m, 1H), 7.44 (m, 2H), 4.30-4.15 (m, 1H), 4.10 (s, 3H), 2.99 (t, 2H), 2.36 (m, 2H).
G32	δ 8.15 (d, 2H), 7.54 (m, 1H), 7.45 (m, 2H), 4.59 (q, 2H), 2.97 (t, 2H), 2.37 (m, 2H), 1.45 (t, 3H).
G33	δ 8.14 (m, 2H), 7.53 (m, 1H), 7.44 (m, 2H), 5.55 (m, 1H), 4.31-4.15 (m, 1H), 2.93 (t, 2H), 2.36 (m, 2H), 1.44 (m, 6H).
G34	δ 8.14 (m, 2H), 7.53 (m, 1H), 7.44 (m, 2H), 4.49 (t, 2H), 4.31-4.15 (m, 1H), 2.98 (t, 2H), 2.36 (m, 2H), 1.86 (m, 2H), 1.06 (t, 3H).
G35	δ 8.14 (m, 2H), 7.53 (m, 1H), 7.44 (m, 2H), 5.53 (s, 2H), 4.08-4.23 (m, 1H), 2.97 (t, 2H), 2.32 (m, 2H).

G36	δ 7.35 (m, 1H), 6.91 (m, 2H), 4.47 (q, 2H), 4.22 (m, 1H), 2.99 (t, 2H), 2.37 (m, 2H), 1.40 (t, 3H).
G37	δ 8.15 (m, 2H), 7.52 (m, 1H), 7.42 (m, 2H), 4.61 (q, 2H), 4.25 (m, 1H), 2.99 (t, 2H), 2.39 (m, 2H), 1.45 (t, 3H).
G38	δ 6.81 (m, 3H), 5.36 (m, 1H), 4.20 (m, 1H), 2.88 (t, 2H), 2.31 (m, 2H), 1.40 (d, 6H).
G39	δ 6.83 (m, 3H), 4.24 (m, 1H), 4.01 (s, 3H), 2.93 (t, 2H), 2.30 (m, 2H).
G40	δ 6.80 (m, 3H), 4.44 (m, 2H), 4.24 (m, 1H), 2.90 (t, 2H), 2.34 (m, 2H), 1.41 (t, 3H).
G41	δ 4.44 (q, 2H), 4.22 (q, 2H), 3.10 (t, 2H), 2.67 (m, 2H), 1.31-1.40 (m, 6H).
G42	δ 4.35 (q, 2H), 4.24 (m, 1H), 2.92 (t, 2H), 2.34 (m, 2H), 2.22 (s, 3H), 1.37 (t, 3H).
G43	δ 4.33 (q, 2H), 4.10 (m, 1H), 2.90 (t, 2H), 2.19 (s, 3H), 2.00 (m, 2H), 1.66 (m, 2H), 1.50 (m, 2H), 1.33 (t, 3H).
G44	δ 4.41 (q, 2H), 4.22 (q, 2H), 4.18-4.04 (m, 1H), 2.93 (t, 2H), 2.00 (q, 2H), 1.67 (m, 2H), 1.50 (q, 2H), 1.39-1.31 (m, 6H).
H1	δ 4.23 (m, 1H), 3.43 (bs, 2H), 2.51 (s, 3H), 2.31 (m, 2H).
H3	δ 4.11 (m, 1H), 3.87 (s, 3H), 3.30 (m, 2H), 2.25 (m, 2H).
H5	δ 7.32 (m, 5H), 4.21 (m, 1H), 3.47 (m, 2H), 2.34 (m, 2H).
H6	δ 4.16 (m, 1H), 3.43 (bs, 2H), 3.10 (bm, 2H), 2.33 (m, 2H), 1.36 (t, 3H).
I1	δ 4.36 (t, 2H), 4.28-4.17 (m, 3H), 2.37-2.47 (m, 5H), 1.33 (m, 3H).
I2	δ 4.35 (m, 2H), 4.26-4.17 (m, 3H), 2.94 (m, 2H), 2.43 (m, 2H), 1.28-1.37 (m, 6H).
I3	δ 4.35 (m, 2H), 4.26-4.17 (m, 3H), 2.93 (m, 2H), 2.44 (m, 2H), 1.69 (m, 1H), 1.53 (m, 2H), 1.33 (m, 3H), 0.91 (m, 6H).
I4	δ 4.34 (m, 2H), 4.22 (m, 3H), 3.68 (m, 1H), 2.44 (m, 2H), 1.39-1.28 (m, 9H).
I5	δ 4.34 (t, 2H), 4.26-4.12 (m, 3H), 2.88 (dd, 2H), 2.42 (m, 2H), 1.33 (t, 3H), 1.03 (m, 1H), 0.62 (m, 2H), 0.27 (m, 2H).
I6	δ 4.35 (t, 2H), 4.28-4.15 (m, 3H), 3.74 (m, 1H), 2.44 (m, 2H), 2.09 (m, 2H), 1.75 (m, 2H), 1.61 (m, 4H), 1.33 (t, 3H).
I7	δ 4.37 (t, 2H), 4.28-4.19 (m, 5H), 3.17 (t, 2H), 2.45 (m, 2H), 2.07 (s, 3H), 1.33 (t, 3H).
I8	δ 4.36 (t, 2H), 4.28-4.14 (m, 3H), 3.71(s, 3H), 3.17 (t, 2H), 2.70 (t, 2H), 2.44 (m, 2H), 1.33 (t, 3H).
I9	δ 4.36 (t, 2H), 4.28-4.14 (m, 3H), 3.02 (m, 2H), 2.71 (m, 2H), 2.55 (q, 4H), 2.43 (m, 2H), 1.33 (t, 3H), 1.03 (t, 6H).
I10	δ 4.35 (t, 2H), 4.28-4.14 (m, 3H), 3.56 (t, 2H), 2.96 (t, 2H), 2.44 (m, 2H), 1.80-1.93 (m, 4H), 1.34 (t, 3H).
J1	δ 4.2 (m, 2H), 3.4 (m, 4H), 2.5 (m, 4H), 2.2 (m, 2H).
J2	δ 3.4 (m, 4H), 2.5 (m, 4H).
J3	δ 5.34 (s, 1H), 4.27 (m, 2H), 3.07 (t, 2H), 2.92 (t, 2H), 2.37 (m, 4H).
J4	δ 7.43 (m, 2H), 7.10 (apparent t, 2H), 4.32 (ddt, 1H), 4.08 (ddt, 1H), 3.05 (t, 2H), 2.80 (t, 2H), 2.40 (q, 2H), 2.18 (q, 2H).

J5	δ 7.42 (m, 5H), 4.34 (ddt, 1H), 4.02 (ddt, 1H), 3.06 (t, 2H), 2.76 (t, 2H), 2.40 (q, 2H), 2.18 (q, 2H).
J6	δ 7.10 (s, 1H), 4.24 (m, 1H), 3.06 (m, 4H), 2.44 (m, 2H), 1.42 (m, 3H).
J7	δ 7.10 (s, 1H), 4.28 (m, 2H), 3.09 (m, 4H), 2.44 (m, 4H).
J8	δ 7.05 (s, 1H), 4.25 (m, 1H), 3.02 (m, 2H), 2.54 (s, 3H), 2.45 (m, 2H).
J9	δ 6.77 (s, 1H), 4.22 (ddt, 1H), 3.60 (m, 4H), 3.07 (t, 2H), 2.38 (q, 2H), 2.04 (m, 4H).
J10	δ 10.52 (bs, 1H), 6.58 (s, 1H), 4.24 (m, 1H), 3.48 (m, 2H), 2.46 (s, 3H), 2.38 (m, 2H).

a ^{1}H NMR data are in ppm downfield from tetramethylsilane. Couplings are designated by (s)-singlet, (d)-doublet, (t)-triplet, (q)-quartet, (m)-multiplet, (dd)-doublet of doublets, (dt)-doublet of triplets, (bs)-broad singlet, (br d)-broad doublet, (br q)-broad quartet, (br t)-broad triplet, (bm)-broad multiplet.

BIOLOGICAL EXAMPLES OF THE INVENTION

TEST A

For evaluating control of diamondback moth (*Plutella xylostella*) the test unit consisted of a small open container with a 12–14-day-old radish plant inside. This was pre-infested with neonate larvae mixed into dry corncob grits that had been sifted through a Standard Testing Sieve No. 30 and retained on a No. 40 sieve. The ratio of larvae to grits was adjusted such that the amount administered to each test unit by a "bazooka" sample transfer device contained 50-80 larvae.

Test compounds were formulated using a solution containing 10% acetone, 90% water and 300 ppm X-77® Spreader Lo-Foam Formula non-ionic surfactant containing alkylarylpolyoxyethylene, free fatty acids, glycols and isopropanol (Loveland Industries, Inc. Greeley, Colorado, USA). The formulated compounds were applied in 1 mL of liquid through a SUJ2 atomizer nozzle with 1/8 JJ custom body (Spraying Systems Co. Wheaton, Illinois, USA) positioned 1.27 cm (0.5 inches) above the top of each test unit. Test compounds were sprayed at 250 ppm and replicated three times. After spraying of the formulated test compound, each test unit was allowed to dry for 1 hour and then a black, screened cap was placed on top. The test units were held for 6 days in a growth chamber at 25 °C and 70% relative humidity. Plant feeding damage was then visually assessed based on foliage consumed.

Of the compounds tested the following provided very good to excellent levels of plant protection (20% or less feeding damage): A1, A2, A8, A15, A16, A23, A25, A28, A29, A31, A34, A36, A38, A42, A43, A45, A46, A47, C1, C2, C4, D1, D2, D3, D4, D5, E4, E18, E19, E20, E23, E27, E29, E47, E76, F5, F13, F31, F33, F36, F39, F58, F59, F61, F78, F79, G7, G8, G9, G11, G14, G17, G18, G20, G22, G23, G26, G27, G31, G32, G33, G34, G36, G44, H3, H6, I1, I2, I3, I4, I5, J2, J3, J5, J7, J8, J10.

TEST B

For evaluating control of corn planthopper (*Peregrinus maidis*) through contact and/or systemic means, the test unit consisted of a small open container with a 3-4 day old corn

(maize) plant (spike) inside. White sand was added to the top of the soil prior to application. Test compounds were formulated and sprayed at 250 ppm and replicated three times as described for Test A. After spraying, the test units were allowed to dry for 1 hour before they were post-infested with 10-20 corn planthoppers (18- to 20-day old nymphs) by sprinkling them onto the sand with a salt shaker. A black, screened cap was placed on the top of the cylinder. The test units were held for 6 days in a growth chamber at 19–21 °C and 50–70% relative humidity. Each test unit was then visually assessed for insect mortality.

Of the compounds tested, the following resulted in at least 80% mortality: A1, A2, A5, A7, A8, A9, A10, A12, A13, A14, A15, A18, A20, A21, A23, A28, A29, A31, A34, A43, A45, A46, B1, B3, B4, B5, B6, B8, C1, D1, D3, E1, E3, E4, E18, E23, E27, E29, E75, E77, E79, E80, E81, E82, F17, F20, F24, F25, F32, F36, F40, F58, F59, F78, F79, G7, G8, G11, G13, G14, G15, G16, G17, G18, G21, G22, G23, G26, G42, J3, J6.

TEST C

For evaluating control of green peach aphid (*Myzus persicae*) through contact and/or systemic means, the test unit consisted of a small open container with a 12–15-day-old radish plant inside. This was pre-infested by placing on a leaf of the test plant 30–40 aphids on a piece of leaf excised from a culture plant (cut-leaf method). The larvae moved onto the test plant as the leaf piece desiccated. After pre-infestation, the soil of the test unit was covered with a layer of sand. Test compounds were formulated and sprayed at 250 ppm and replicated three times as described for Test A. After spraying of the formulated test compound, each test unit was allowed to dry for 1 hour and then a black, screened cap was placed on top. The test units were held for 6 days in a growth chamber at 19–21 °C and 50–70% relative humidity. Each test unit was then visually assessed for insect mortality.

Of the compounds tested, the following resulted in at least 80% mortality: A1, A2, A3, A4, A5, A6, A8, A9, A12, A14, A15, A18, A20, A21, A23, A25, A28, A29, A31, A34, A36, A38, A42, A43, A45, A47, B1, B4, B5, B6, B9, C1, D1, D2, D3, D4, D5, E1, E2, E3, E18, E23, E27, E29, E37, E40, E41, E42, E45, E47, E48, E49, E51, E52, E57, E58, E59, E60, E61, E63, E64, E65, E66, E67, E69, E71, E72, E73, E74, E75, E77, E78, E80, E85, E86, E87, F4, F5, F6, F11, F12, F13, F16, F17, F18, F19, F20, F21, F22, F23, F25, F26, F27, F28, F29, F31, F32, F33, F34, F39, F40, F41, F42, F43, F44, F46, F47, F58, F58, F60, F61, F62, F64, F65, F66, F67, F77, F78, F79, G7, G8, G9, G11, G13, G14, G15, G16, G17, G18, G20, G21, G22, G23, G24, G25, G26, G27, G30, G31, G32, G33, G34, G35, G36, G42, G43, G44, H1, H6, I1, I2, I3, I4, I5, I6, I7, I9, I10, J2, J3, J5, J6, J7, J8, J9, J10.

TEST D

For evaluating control of the Root Knot Nematode (*Meloidogyne incognita*) through contact and/or systemic means, the test unit consisted of a small open container with a 7-9 day old tomato plant inside. Test compounds were formulated and sprayed at 250 ppm and replicated three times as described for Test A. After spraying, the test units were allowed to

dry for 1 hour and then about 250 juvenile stages 2 (J2) larvae were pipetted into the soil and then a black, screened cap was placed on top. The test units were held for 6 days at 25 °C and 65-70% relative humidity. Each test unit was then visually assessed for root damage.

Of the compounds tested, the following provided excellent levels of plant protection (80% or more reduction in root galling): A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A12, A13, A14, A15, A16, A18, A19, A21, A23, A25, A28, A29, A31, A34, A36, A38, A42, A43, A45, A46, A47, B1, B2, B4, B5, B6, B9, B10, C3, C5, C8, D1, D2, D3, D4, D5, E3, E4, E6, E10, E12, E13, E15, E16, E17, E18, E19, E20, E21, E22, E23, E27, E28, E29, E30, E31, E33, E37, E39, E40, E41, E42, E43, E44, E45, E46, E47, E48, E49, E50, E51, E52, E57, E61, E63, E64, E65, E66, E69, E70, E72, E74, E75, E77, E79, E80, E82, E83, E86, F1, F3, F4, F5, F12, F13, F14, F16, F17, F18, F19, F20, F20, F21, F22, F23, F24, F25, F26, F27, F28, F29, F31, F32, F33, F34, F39, F40, F41, F42, F43, F44, F46, F47, F58, F59, F60, F61, F62, F64, F65, F66, F77, F78, F79, G1, G2, G3, G4, G6, G7, G8, G9, G11, G13, G14, G15, G20, G21, G22, G23, G24, G25, G26, G27, G28, G30, G31, G32, G33, G34, G35, G36, G43, G44, H1, I1, I2, I3, I4, I5, I6, I7, I8, I9, I10, J1, J2, J3, J6, J7, J8, J9, J10.

TEST E

For evaluating control of potato leafhopper (*Empoasca fabae* Harris) through contact and/or systemic means, the test unit consisted of a small open container with a 5-6 day old Longio bean plant (primary leaves emerged) inside. White sand was added to the top of the soil and one of the primary leaves was excised prior to application. Test compounds were formulated and sprayed at 250 ppm and replicated three times as described for Test A. After spraying, the test units were allowed to dry for 1 hour before they were post-infested with 5 potato leafhoppers (18 to 21 day old adults). A black, screened cap was placed on the top of the cylinder. The test units were held for 6 days in a growth chamber at 19–21 °C and 50–70% relative humidity. Each test unit was then visually assessed for insect mortality.

Of the compounds tested, the following resulted in at least 80% mortality: A8, A10, A15, A16, A28, A31, A43, C1, D1, E10, E18, E19, E27, E29, F29, F36, F58, F59, F64, G7, G11, G13, G14, G20, G23, G24.

TEST F

For evaluating control of cotton melon aphid (*Aphis gossypii*) through contact and/or systemic means, the test unit consisted of a small open container with a 6–7-day-old cotton plant inside. This was pre-infested with 30–40 insects on a piece of leaf according to the cut-leaf method described for Test C, and the soil of the test unit was covered with a layer of sand.

Test compounds were formulated and sprayed at 250 ppm as described for Test A. The applications were replicated three times. After spraying, the test units were maintained in a growth chamber and then visually assessed for insect mortality

Of the compounds tested, the following resulted in at least 80% mortality: A2, A8, A9, A12, A14, A15, A21, A28, A31, A42, A43, A45, A47, B5, C1, D1, D2, D3, D4, D5.

TEST G

For evaluating control of the Western Flower Thrip (*Frankliniella occidentalis*) through contact and/or systemic means, the test unit consisted of a small open container with a 5-7 day old Longio Bean plant inside.

Test compounds were formulated and sprayed at 250 ppm and replicated three times as described for Test A. After spraying, the test units were allowed to dry for 1 hour and then 22-27 adult thrips were added to the unit and then a black, screened cap was placed on top. The test units were held for 7 days at 25 °C and 45-55% relative humidity.

Of the compounds tested, the following provided excellent levels of plant protection (20% or less feeding damage): A1, A2, A5, A7, A8, A10, A11, A12, A14, A15, A16, A18, A23, A25, A28, A29, A31, A34, A36, A38, A42, A43, A45, A46, A47, B7, C1, C2, C4, C5, D1, D2, D3, D4, D5, E18, E23, E27, E29, E31, E51, E52, E71, E72, E75, E77, E78, E79, E82, F5, F13, F16, F18, F31, F32, F33, F34, F35, F36, F40, F58, F59, F61, F66, G1, G8, G9, G13, G14, G16, G21, G22, G27, G28, G30, G32, G33, G34, G35, G36, G38, G39, G40, G42, H3, H5, H6, I1, I3, J2, J6, J7, J8.

TEST H

For evaluating control of adult two-spotted spider mite (*Tetranychus urticae*) through contact and/or systemic means, the test unit consisted of a small open container with a 7-day-old Soliel bean plant inside. The test plant was pre-infested by placing cut leaves bearing 25-50 adult two-spotted spider mites on the test plant leaves. Overhead fluorescent lights were used to induce migration of the mites from the cut leaves to the underside of the leaves of the test plants, which occurred over the course of 18 hr. Test compounds were formulated and sprayed at 250 ppm and replicated three times as described for Test A. After spraying of the formulated test compound, each test unit was allowed to dry for 1 hour and then a black, screened cap was placed on top. The test units were held for 6 days in a growth chamber at 25 °C and 50–70% relative humidity. Each test unit was then visually assessed for adult mite mortality.

Of the compounds tested, the following resulted in at least 80% mortality: A2, A3, A4, A5, A7, A8, A9, A12, A13, A14, A15, A16, A17, A18, A20, A21, B4, B5, B6, B10, E1, E2, E3, E4, E79, E80, E83, G23, G28.